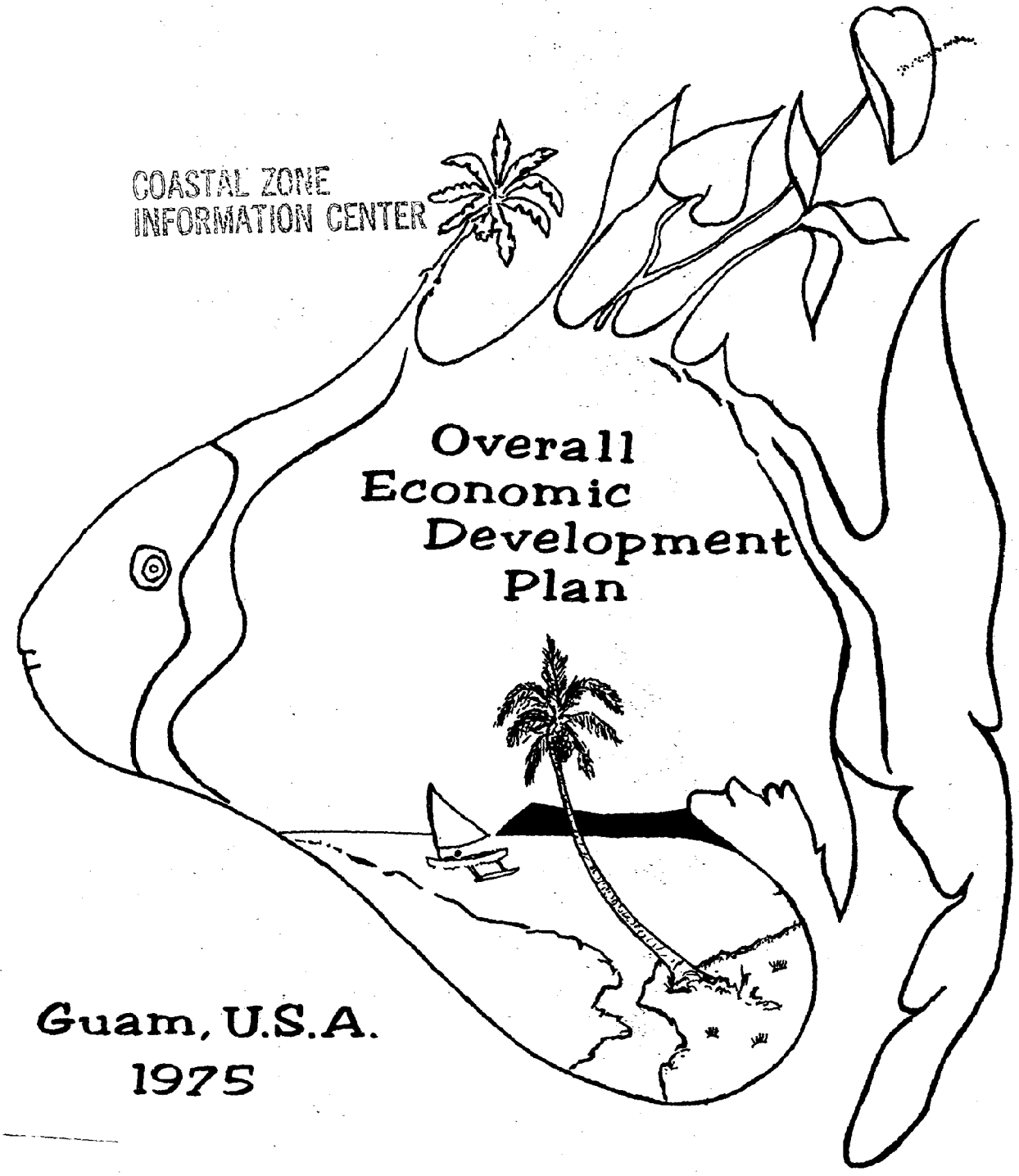

Overall Economic Development Plan

Guam, U.S.A.
1975

U.S. DEPARTMENT OF COMMERCE NOAA
COASTAL SERVICES CENTER
2234 SOUTH HOBSON AVENUE
CHARLESTON, SC 29405-2413

05426

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I. INTRODUCTION AND ORGANIZATION

This Overall Economic Development Plan (OEDP) was developed as a planning tool for all segments of the Guam community and to show justification for the Territory of Guam to be redesignated as a redevelopment area. It will specifically be used by the Bureau of Planning in the formulation of the "Comprehensive Development Plan" which is required by Public Law 12-200. This OEDP was accomplished through a concentrated cooperative effort by a well balanced citizen advisory committee and appropriate agencies of the Government of Guam. Members of the task force that deserve special recognition for this accomplishment are as follows:

OEDP Committee:

1. Francis Wilson - Retail Gasoline Dealer, Part-Time Farmer - Chairman
2. Donna Cruse - School Teacher - Secretary
3. Lagrimas Untalan - Retired Educator - Member
4. Ana Sgambelluri - Housewife, Past Educator - Member
5. Paul Gregory - Retired Civil Service and Gentleman Farmer - Member
6. Jesse Perez - Officer of Bank of Guam - Member
7. Jim Lane - Restaurant Owner - Member
8. Manuela Quan - Apparel Shop Owner - Member
9. Jack Peters - General Contractor and Supplier - Member
10. Scott Campbell - Sporting Goods Proprietor - Member
11. Bill Asper - Assistant Manager of Guam Oil & Refining Company, Inc. - Member
12. Joe Blas - Tour Operator - Member

Government of Guam Technical Advisory and Support Group:

1. Audrey Camba - Senior Analyst, Bureau of Budget & Management Research - Chief Technical Advisor
2. Dr. Edwin Carey - Dean, College of Business, University of of Guam - Advisor
3. Dr. Christopher Ford - Professor, University of Guam - Advisor
4. Clark Jewell - Acting Deputy Director, Bureau of Planning - Project Coordinator
5. Dr. Peter Mayer - Economist, Department of Commerce - Advisor
6. Margaret Macario - Research Analyst, Bureau of Planning - Researcher
7. Magdalena Leon Guerrero - Secretary, Bureau of Planning - Chief Typist
8. Evangeline Blas - Clerk Typist, Bureau of Planning - Typist
9. Juana Siongco - Administrative Assistant, Bureau of Planning - Typist
10. Viola Combs - Secretary, Goals for Guam Commission - Typist

I offer my sincere thanks to the Department of Commerce, the University of Guam, and the Bureau of Budget and Management Research for the temporary loan of personnel to accomplish this project. My thanks are also extended to the other members of the Bureau of Planning, other Government agencies, and segments of the community that provided information and support to this project.

As is shown in the committee's future work plan, there will be a continuous effort toward keeping this plan updated for use as an effective planning tool.

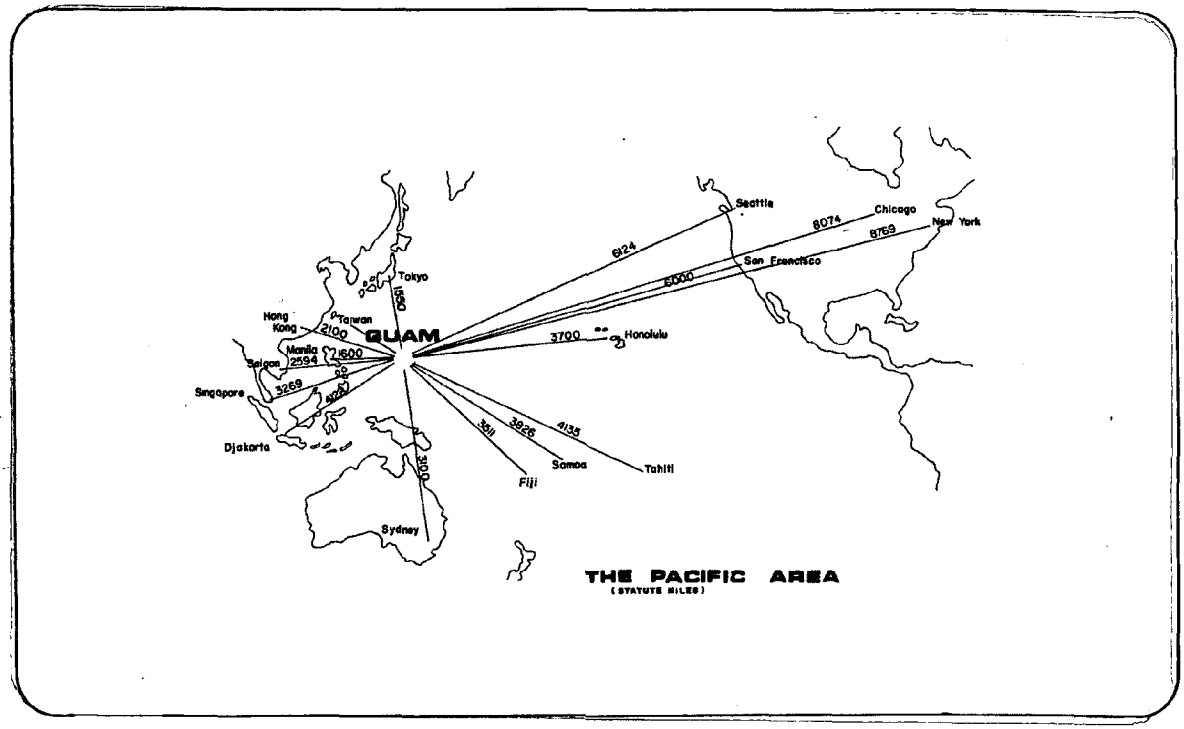
Paul B Souder

PAUL B. SOUDER
Director
Bureau of Planning

Date: 6/24/75

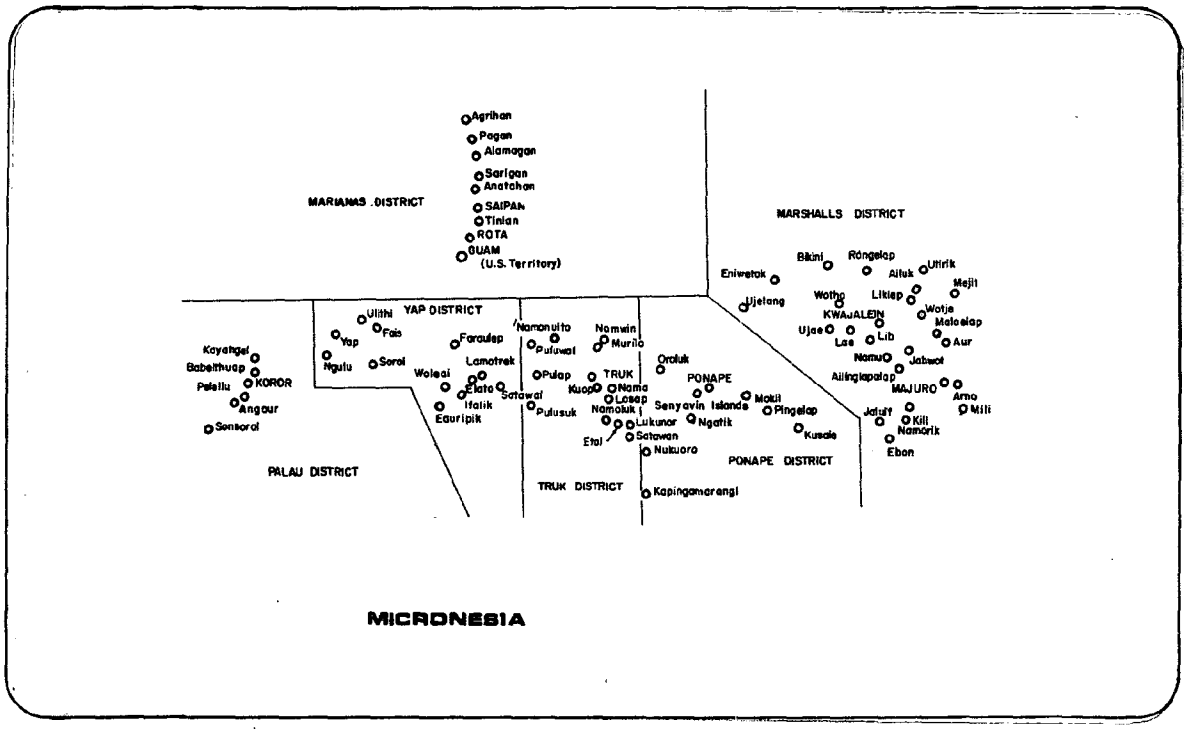
MAP NO. 1

GUAM'S LOCATION IN WESTERN PACIFIC



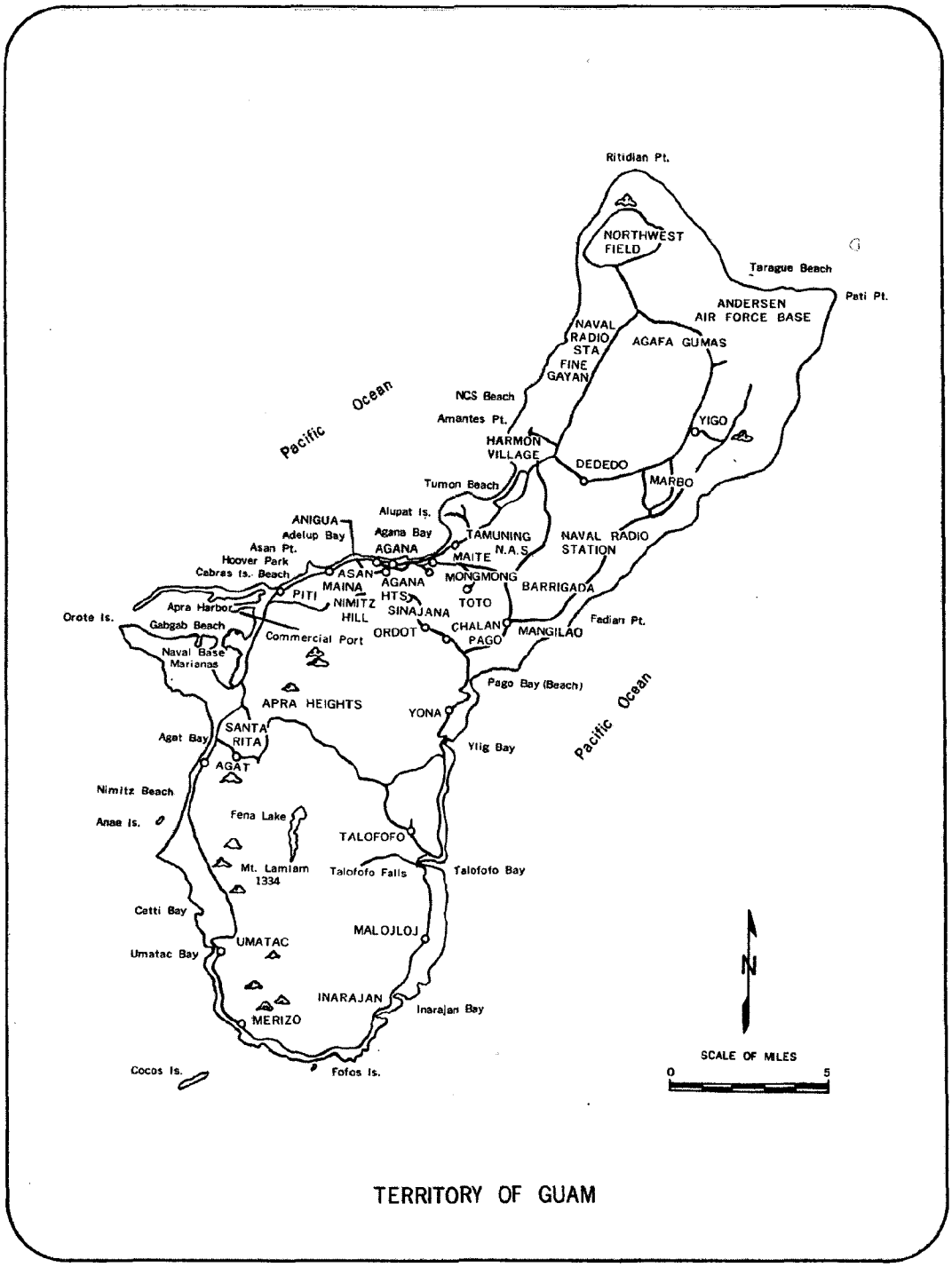
MAP NO. 2

GUAM AND ITS IMMEDIATE ENVIRONMENT



MAP NO. 3

G U A M



TERRITORY OF GUAM

MAP NO. 4

AIR ROUTES PRIOR TO MARCH, 1975, INCLUDING T.W.A. FLIGHTS

WHERE IS GUAM ?

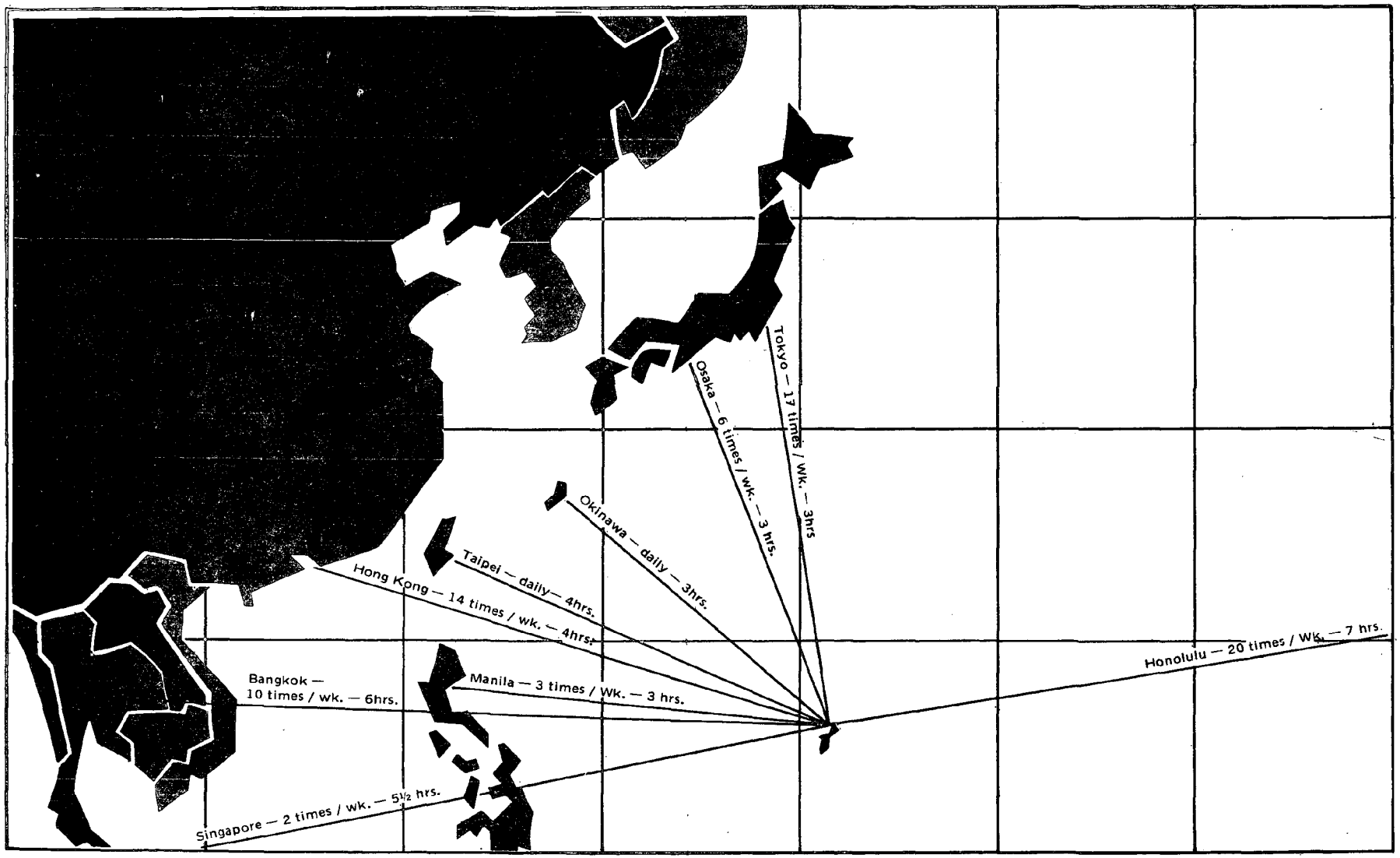


TABLE I

TABLE OF CONNECTIONS

NUMBER OF DIRECT CONNECTIONS/WEEK

APRIL 1, 1975

GUAM	Japan Air Lines	Pan American Airways	Continental Air Micronesia	Air Pacific	TOTAL
To/From					
Tokyo	7	7			14
Osaka	3	3			6
Manila		4			4
HongKong		7			7
Okinawa		4			4
Taipei		4			4
Singapore		3			3
Honolulu		7	3		10
San Francisco		7			7
Saipan			24	14	38
Truk			3		3
Ponape			3		3
Kwajalein			3		3
Majuro			3		3
Johnston Island			3		3
Yap			3		3
Palau			3		3
Rota			6	14	20
Tinian			1	14	15

CARGO	(Weekly)	Pan American
From	Honolulu	1
	San Francisco	1
	Tokyo	2
To	Osaka	2
	Singapore	1

II. THE AREA AND ITS ECONOMY

General Description of Guam and Its Economy

Location:

The island of Guam is the southernmost of the Marianas chain of islands situated between the 13th and 20th parallels of north latitude and along the 145th meridian east of Greenwich. The islands consist of 15 small volcanic outcrops fringed by coral reef. They stretch from north to south in a curved arc 420 miles long. Guam itself is located 13 degrees north latitude, and 143 degrees east longitude. The island is 30 miles from north to south and 4 to 9 miles wide. Shaped roughly in the form of a footprint with a narrow waist, Guam is 215 square miles, exclusive of the reef area which, if included, would make Guam 224 square miles.

Distance from Major Cities:

In terms of its geographic relationship with the United States, Guam lies 5,875 miles south-west of San Francisco, and 3,800 miles due west of Honolulu. It lies 900 miles north of the equator, 600 miles north of the Caroline Islands, and forms the only substantial land area between Hawaii and the Philippines.

In terms of the Orient, Guam is located at the crossroads of the Western Pacific. Her major industrial neighbors to the north, west and south include Japan, 1,550 miles to the north; HongKong, 1,825 miles west-north-west; Manila, 1,600 miles to the west; Saigon, 2,550 miles due west; Singapore, 3,000 miles southwest; and Perth, Australia located 3,700 miles south-west of Guam.

Guam has historically been the natural hub of the islands of Micronesia, and in ancient times was established as a convenient trading center for the inhabitants of the northern Marianas, the Carolines to the south and southeast, and the Marshall Islands to the east.

Special Geographic Features:

Guam's footprint shape results from the fact that the bed of the ocean was thrown above the ocean surface as a result of subterranean volcanic upheavals which occurred at different times in the island's geological history. Guam consists of two distinct and different land masses. The northern plateau was thrown up above the ocean level by undersea volcanic activity to the northwest of the island. The southern region, also the product of volcanic eruptions in the ocean bed to the southwest, was cast up onto the southern shores of the original island many thousands of years after the elements had already begun to wear down and level off the tops of the northern hills. Thus the waist of the island is four miles narrow, and its terrain is only a few feet

The northern sector of the island consists of a gently sloping limestone plateau with an elevation that ranges from 600 feet on the west coast to 200 feet on the east. The flatness and solidity of the limestone plateau lends it readily to industrial development and construction. Four major airfields were constructed on this plateau by the U.S. military during the second World War. The construction of the island's infrastructure and buildings is less costly in the north than in the south.

Beneath the porous limestone plateau are two major water lenses whose water provides the major source of supply for the residents and industries of the northern and central districts. The plateau has also proven suitable for the cultivation of citrus fruits, nuts and various types of root crops.

The southern portion of the island consists of hills, deep valleys, streams and rivers, dense jungle areas and fertile but clayey soil. The hills range from an altitude of 700 to 1,300 feet in height. They form a sharp ridge which runs from the narrow waist of the island in the center, southwards to the southern tip of the coast. This southern portion of the island lends itself more readily to the development of agriculture than industry. Because of its uneven topography, and the relative inaccessability of the interior valley regions, the development of its infrastructure is more costly and lags behind that of the north.

Distribution of Population:

Because the upper-middle and northern sectors of Guam lend themselves more readily to development than the south, housing subdivisions, industry and commerce are concentrated mainly in the central and northern areas. Thus more than twice as many people reside in the central and northern portions of the island as in the south.*

Because no formal population census has been taken since 1970, population counts for 1974 vary from a minimum of 105,641 to 120,430. Utilizing the larger figure it can be said that a total of 82,831 military and civilians reside in the upper central and northern sections of the island, while a total of 37,599 live in the south. Of the 37,599 who inhabit the southern section, over ten thousand are military personnel and their dependents, the majority of whom live on the Naval Base, Apra Harbor.

* See Map of Population Distribution.

Of the 82,831 persons residing in the central and northern sectors of the island, approximately 14,000 are military and their dependents. Approximately 5,500 of these live at Andersen Air Force Base in the north, 3,900 at the Naval Communications Station, 1,300 at Marbo Housing area, and 2,919 at the Naval Air Station.

Major concentrations of the civilian population are at Tamuning which has a population of approximately 16,340 persons. The village of Dededo is the second most populated area with around 15,000 residents. Agat in the south has a population estimated at 13,000. The growth of Agat is due to its proximity to the U.S. Naval Base and the Commercial Port of Guam.

The capital city of Agana recovered slowly following the ravages of World War II and currently has a resident population of only 4,000, as compared with densely populated Tamuning two miles to the north. Nevertheless, thousands of government workers pour into the city daily since it remains the center of insurance, finance and government administration.

Since the second world war, Tamuning and its environment has developed as the island's center of residence, commerce and industry. Unhampered by the problems of land ownership which plagued Agana's post war development, Tamuning has become the chosen site for industrial parks, shopping centers, wholesaling, warehousing, public and private hospital facilities, medical centers and clinics, factories and furniture stores. On its northern boundary lies the beautiful Tumon Bay, where modern hotels have located, catering to tourism and Harmon which contains another major industrial park.

Transportation Linkages:

Through February 1975, Guam's air service included four major carriers (Trans World Airways, Pan American, Continental Air Micronesia and Japan Air Lines) and one air-taxi service, Air Pacific, serving other islands in the nearby region. TWA's service included two daily round-the-world flights which boarded and discharged passengers on Guam.

A major change in the character and frequency of Guam's air service took place on March 3, 1975, with the retreat of Trans World Airlines from the Pacific market. A partial solution to large operating losses in recent years was found by TWA and Pan American Airways in an exchange of air routes, expected to lead to increased load factors and increased profitability. The effect of the decision on the areas served however, may not be so beneficial.

As the Table of Connections indicates, (Table No. I), plans by airlines serving Guam as of April 1, 1975 will include only seven direct flights to other U.S. destinations per week (Pan Am's flight

to San Francisco via Honolulu), while another three flights (Continental/Air Micronesia) terminating in Honolulu pass through Truk, Ponape, Kwajalein, Majuro and Johnston Island, a service which, while being of distinct value to residents of these intermediate points, is of more questionable value in the movement of passengers and cargo from Guam to ultimate points in Hawaii and the mainland.

A comparison of the seven direct flights per week to U.S. points, with the twenty-four direct flights per week to Japan, provides significant implications on the flow of trade (goods, services and people) in the future. Trade communication will be much easier between Asia and Guam than between Guam and the United States.

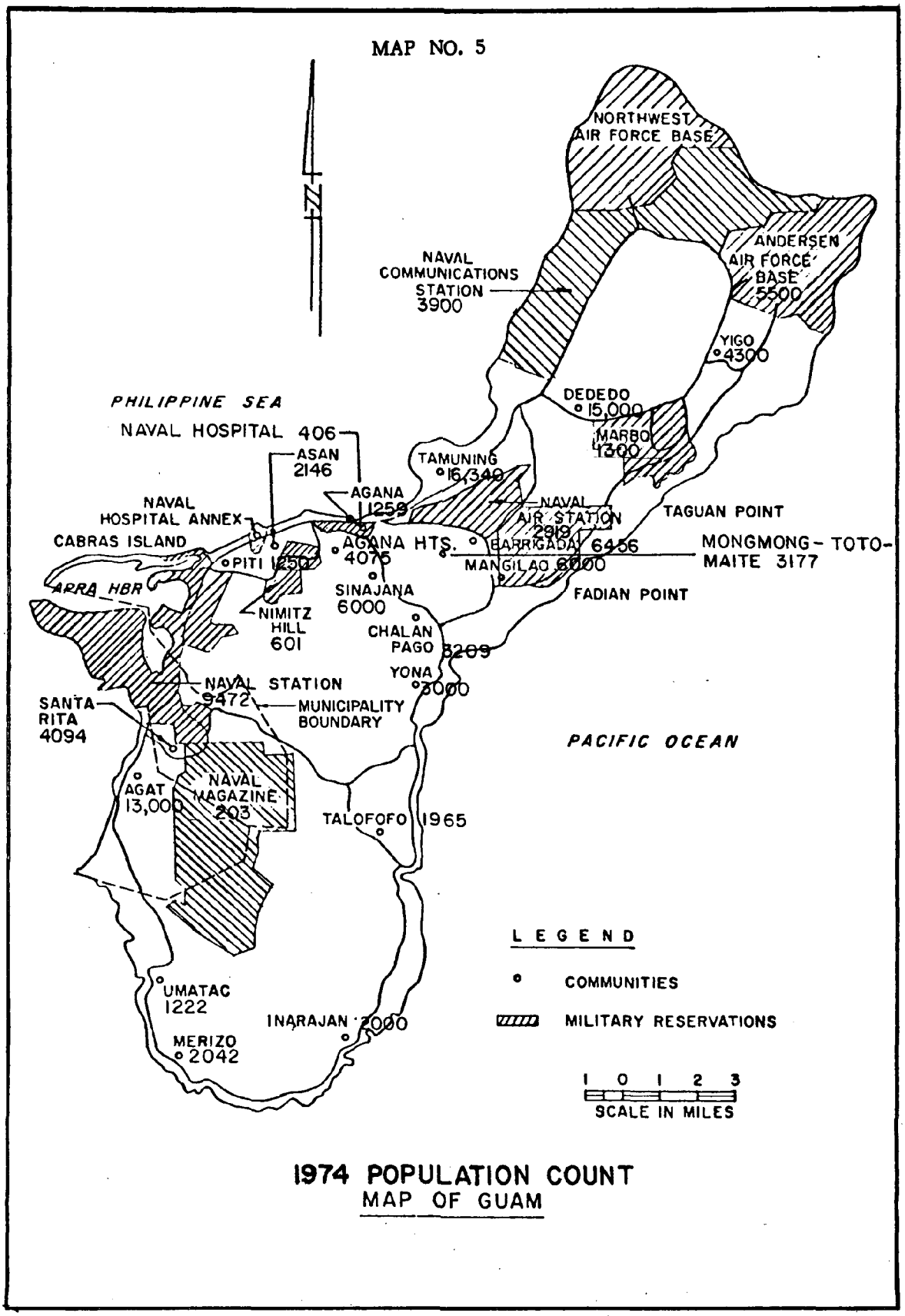
These implications are highlighted in two ways. First, there are twice as many exclusively cargo flights (Pan Am) from Japan to Guam as from the West Coast to Guam, and all three weekly cargo flights from the mainland terminate in Asia. (The latter fact runs contrary to the Government of Guam's long-standing policy of promoting assembly and processing industries - adding value to goods and shipping them duty free to the U.S. Mainland. Thus, a major thrust of Guam's development policy - the realization of an entrepot status - is frustrated.)

Secondly, because of the Jones Act, foreign commerce conducted aboard foreign vessels is less expensive than domestic commerce (Guam to other U.S. ports) which must be conducted exclusively on more expensive and less competitive American vessels. (Federal regulations, nevertheless, pertaining to many specific items such as food products and drugs require that these be manufactured in the United States, which means that cost of such products is high.)

Guam's geographic location also contributes significantly to the desirability of Asian trade and commerce. Yet only recently has Guam's import trade shifted in favor of the Orient. Passenger services, predominantly an adjunct to the tourist industry, shifted in favor of the Orient several years ago, and these services include limited, but significant cargo capacity.

Guam's air and sea contacts might be expected to follow the Territory's needs for such services. Unfortunately this is not the case. The amount of service provided Guam reflects the vested interests of the carriers, as the TWA-Pan Am swap illustrates. Federal regulation does not ease the basic reality that Guam's impact on the carriers' policy is minor, while the carriers' impact on Guam's economy is profound. In fact the highly regulated nature of the air transport industry itself contributes to a considerable lag

in adjusting routes and schedules to changes in the island's needs. In the end, the existing routes tend to constrain and determine Guam's flow of trade and its very development (dependent as it is on external factors) rather than the reverse.



1974 POPULATION COUNT
MAP OF GUAM

POPULATION

TABLE NO. II

Year	Guamanians 2/	Statesiders	Permanent Residents	Parolees	H-2's	Other Aliens	Total Aliens*	U.S. Military & Dependents**	TOTAL
1950	27,124						9,454	22,920	59,498
1951-1959									
1960	34,762	4,538		STATISTICS UNRELIABLE			4,415	23,329	67,044
1961	36,372	4,684					4,792	23,300	69,148
1962	38,049	4,720					5,106	26,684	74,559
1963	39,428	4,961					5,698	29,371	79,458
1964	41,362	5,102	3,120	2,773		1,686	7,579	32,228	86,271
1965	42,961	5,210	3,421	1,373		2,897	7,697	33,385	89,247
1966	44,553	5,334	3,621	2,429		2,109	8,159	38,000	96,046
1967	46,219	5,650	4,305	2,539		1,977	8,821	38,000	98,690
1968	47,768	5,866	5,207	3,139		1,950	10,296	35,000	98,930
1969	49,272	6,034	5,243	3,409	318	1,907	10,877	21,768	87,951
1970 1/	46,623	6,015	6,428	2,837	1,435	1,342	12,042	20,316	84,996
1970	50,649 2/	6,248	6,428	2,837	1,435	1,342	12,042	20,316	89,255
1971	52,022	6,280	7,572	2,344	2,771	1,636	14,323	28,453	101,078
1972	53,206	6,557	9,090	1,717	3,695	1,983	16,485	28,775	105,003
1973	54,404	6,846	10,403	2,875	5,859	2,845	21,982	29,000	112,232

TABLE II

(Continued)

Year	Guamanians	Other U.S. Citizens	Permanent Residents	Parolees	H-2's	Other Aliens	Total Aliens*	U.S. Military & Dependents**	TOTAL
								June 1974	
1974	55,998	7,148	11,600	2,313	7,806	1,105	22,824	22,590	108,560
1975	57,598	7,463	12,876	196	6,737	1,000	20,809	22,000	107,870
1976	59,095	7,702	14,292	-0-	5,000	1,000		22,000	109,089
1977	60,631	7,948	15,864	-0-	5,000	1,000		22,000	112,443
1978	62,207	8,202	17,609	-0-	5,000	1,000		22,000	118,018
	2.6% projected increase per year.	3.2% projected increase per year.	11% projected increase per year.						

*Aliens - U.S. Justice Department, Immigration and Naturalization Services Statistics (annual reports).

**U.S. Census counts and ComNavMar.

1/ U.S. Census 1970

2/ Guam Commissioner's Office - local census. The count for Guamanians is also based on recorded births, Department of Public Health and Social Services, Vital Statistics Division. Figures can only be regarded as estimates.

*As of February, 1975.

TABLE NO. III

AGE DISTRIBUTION OF
THE POPULATION OF GUAM
FOR 1950, 1960 AND 1970

Age Group	Population 1950	Population 1960	Population 1970	Percent 1950	Percent 1960	Percent 1970
Under 5	7,568	10,824	11,635	12.7	16.1	13.7
5 to 9	4,453	9,164	11,762	7.5	13.7	13.8
10 to 14	4,084	7,254	10,304	6.9	10.8	12.1
15 to 19	7,162	4,994	8,049	12.0	7.4	9.5
20 to 24	11,378	6,744	10,270	19.1	10.1	12.1
25 to 29	7,275	5,572	6,406	12.2	8.3	7.5
30 to 34	5,452	6,617	6,171	9.2	9.9	7.3
35 to 39	4,044	5,151	5,474	6.8	7.7	6.4
40 to 44	2,761	3,403	4,792	4.6	5.1	5.6
45 to 49	2,014	2,631	3,530	3.4	3.9	4.2
50 to 54	1,216	1,736	2,305	2.0	2.6	2.7
55 to 59	810	1,171	1,748	1.4	1.7	2.1
60 to 64	483	695	1,070	0.8	1.0	1.3
65 to 69	346	478	689	0.6	0.7	0.8
70 to 74	204	271	351	0.4	0.4	0.4
75 to 79)		182	246	-	0.3	0.3
80 to 84)		86	105	-	0.1	0.1
85 and over)	248	71	89	0.4	0.1	0.1
Total	59,498	67,044	84,996	100.0	100.0	100.0
Median Age	22.8	20.8	20.4			
Male	23.3	22.9	21.6			
Female	20.3	16.5	18.2			

Source: U.S. Department of Commerce, Bureau of the Census publication PC (1)-B54.

TABLE NO. IV

PLACE OF BIRTH OF
THE POPULATION OF GUAM
FOR 1950, 1960 AND 1970

	1950	1960	1970
Total Population	59,498	67,044	84,996
Native Born	51,459	57,345	71,512
Guam [1]	27,124	34,762	46,623
Other Outlying Area of the U.S.[1]	388	122	106[1]
United States	23,668	21,030	23,934
Foreign Born	8,039	9,699	13,484
Republic of the Philippines	6,888	7,164	10,172
Japan)	35	303	487
Other Asia)			732
Europe	206	443	821
Other Foreign Countries[2]	910	1,789	1,272

1/ In 1970 the categories "Guam" and "Other Outlying Area of the U.S." were replaced by "Born in a U.S. Territory" and "Born in Puerto Rico".

2/ Includes 924 "Not Reported" for 1970.

Source: U.S. Department of Commerce, Bureau of the Census publications PC(1)-B54.

TABLE NO. V

CITIZENSHIP STATUS
AND YEAR OF IMMIGRATION
OF FOREIGN BORN ON GUAM: 1970

	Under 18	18 & Over	All Ages
Citizenship			
Naturalized	640	2,851	3,491
Permanent Alien	1,450	3,577	5,027
Temporary Alien	99	3,946	4,045
Born Abroad of American Parents	717	204	921
Total Foreign Born	2,906	10,578	13,484

Year of Immigration	Number
Total Foreign Born	13,484
1969 to 1970	5,672
1967 to 1968	2,950
1965 to 1966	1,081
1960 to 1964	1,647
1955 to 1959	451
1950 to 1954	804
1940 to 1949	837
1930 to 1939	20
Before 1930	22

Source: U.S. Department of Commerce, Bureau of the Census publication PC(1)-B54.

TABLE NO. VI

NUMBER OF CHILDREN
EVER BORN PER 1000 WOMEN
FOR GUAM: 1960 AND 1970

	1960	1970
Number of Children Ever Born Per 1000 Women Ever Married		
15 to 24 Years Old	1,507	1,235
25 to 34 Years Old	3,143	2,980
35 to 44 Years Old	4,125	4,656
Number of Children Ever Born Per 1000 Women		
15 to 24 Years Old	NA	499
25 to 34 Years Old	NA	2,664
35 to 44 Years Old	NA	4,340

NA=Not Available

Source: U.S. Department of Commerce, Bureau of the Census publications PC(1)-B54.

TABLE NO. VII

POPULATION MOBILITY
FOR GUAM POPULATION 5 YEARS OLD
AND OLDER: 1970

Residence 1965	Population
Total Population 5 Years Old & Older	73,361
Same House 1/	31,309
Different House	39,813
In United States	19,077
In U.S. Territory 2/	13,201
In Puerto Rico	102
In Foreign Country	7,433
Moved, Residence Not Reported	2,239

1/ The present living in the same house is 42.7% for Guam and 53.0% for the United States. If the "Different House" groups other than "In U.S. Territory" (mostly Guam) and "Not Reported" are subtracted from the total population, the percent for Guam changes to 70.3.

2/ From categorization changes and magnitude of population categories associated with footnote one, Table No. IV, it is believed that most of these 13,201 persons were residents of Guam in 1965.

Source: U.S. Department of Commerce, Bureau of the Census publication PC(1)-B54; Statistical Abstract of the United States, 1971.

TABLE NO. VIII

COMPARISON OF GUAM
AND U.S. POPULATION
DISTRIBUTION BY AGE: 1970

Age Group	Guam Distribution	U.S. Distribution
Under 5	13.7	8.4
5-20	38.1	31.1
21-24	9.4	6.3
25-34	14.8	12.3
35-44	12.0	11.4
45-54	6.9	11.4
55-64	3.4	9.1
65-74	1.2	6.1
75 and Over	0.5	3.8

Source: U.S. Department of Commerce, Bureau of the Census publication PC(1)-B54; Statistical Abstract of the United States, 1971.

TABLE NO. IX

GUAM POPULATION, AREA AND DENSITY
BY ELECTION DISTRICT, 1960 AND 1970

Election District	Land Area in Square Miles	Population 1960	Population 1970	Density 1960	Density 1970
Guam	215	67,044	84,996[1/]	321	407
Agana	1	1,642	2,119	1,642	2,119
Agana Hts.	1	3,210	3,156	3,210	3,156
Agat	11	3,107	4,308	282	431
Asan	6	3,053	2,629	509	438
Barrigada	9	5,430	6,356	603	706
Chalan Pago & Ordot	6	1,835	2,931	306	489
Dededo	30	5,126	10,780	171	359
Inarajan	19	1,730	1,897	91	100
Mangilao	10	1,965	3,228	197	323
Merizo	6	1,398	1,529	233	255
Mongmong, Toto & Maite	2	3,015	6,057	1,508	3,029
Piti	7	1,467	1,284	210	183
Santa Rita	16	12,126	8,109	758	477
Sinajana	1	3,862	3,506	3,862	3,506
Talofofo	17	1,352	1,935	80	114
Tamuning	6	5,944	10,218	991	1,703
Umatac	6	744	813	124	136
Yigo	35	7,682	11,542	219	330
Yona	20	2,356	2,599	118	130

1/ In 1970 the urban population was 25.5 percent of the total.

Source: U.S. Department of Commerce, Bureau of the Census publications PC(1)-A54.

Population and Labor Force

Population:

The original settlers of Guam were the Chamorros. Today the Chamorro population is a mixture of the original settlers and other people who have come to the island and intermarried. The pre-Spanish population of Chamorros has been estimated at around 50,000. Following the settlement of Guam by Spanish missionaries in 1668, the Chamorro population declined to a low of 1,576 in 1741 as the result of warfare and extermination by the Spaniards, epidemics, suicide, abortion and infanticide. By 1900 the Chamorro--or more accurately, Guamanian--population had recovered to number 9,630, and increased to 27,124 by 1950.

As the attached Table No. II indicates, the total population of Guam including the military, their dependents, aliens and statesiders, as per the U.S. Census counts for 1950 and 1970 increased dramatically by 43%.

The U.S. Census for 1970, which computed a total population of 84,966, is of questionable value. An alternative estimate based partly on recorded Guamanian births gives the number of Guamanians as 50,649 rather than 46,623, which brings the total count up to 89, 255.

With reference to Table No. II the statistics given for Guamanians (persons born on Guam with a percentage of Chamorro blood) are based the U.S. Census counts for 1950, 1960, and 1970; and upon the number of births recorded by the Guam Department of Public Health and Social Services' Vital Statistics Division. The statistics on statesiders are obtained from both U.S. Census counts, and from the Guam Department of Commerce. Statistics on aliens are based upon the Justice Department, U.S. Immigration and Naturalization Services Annual Reports. Statistics on the U.S. Military and Dependents also are obtained from the U.S. Census counts and from the Commander, Naval Forces, Marianas.

Concerning the number of Guamanians on Guam in any given year, it is suggested that the statistics given be regarded as estimates. As of this date no official record exist of the number of Guamanians returning from Guam to the U.S. mainland, or of the number of Guamanians returning to Guam with wives and children born in other parts of the world. During the last five years, between 1969 and 1974, based on local birth records, Guamanians have increased by 2.6% per year. Statesiders during the same period have increased at the annual rate of 3.2%, and permanent residents have increased at the annual rate of 17.3%.

Prior to the Second World War and up until 1950, Guamanians with Chamorro blood comprised the majority of the resident population of Guam. By 1973, over 50% of the total population consisted of 'outsiders', that is of persons who had entered Guam for various reasons from other areas, including the United States mainland. In 1973 there were an estimated 54,404 Guamanians as compared to 57,828 outsiders. The social and economic impact upon Guamanians of such a large percentage of 'foreigners' or 'outsiders' living and working on Guam is obviously dynamic and in some ways traumatic. For the purpose of this study, 'outsiders' consisted of the military and their dependents (29,000), permanent residents (10,403), temporary alien workers (8,734), other aliens (2,845), and statesiders (7,000), these categories of persons having contributed significantly to the economic development of the island.

Table No. II indicates clearly the impact U.S. military activities in the Western Pacific have upon the population of Guam. During the latter part of the 1960's the number of U.S. military and their dependents on Guam increased considerably as the direct result of the U.S. involvement in Vietnam. Statistics for 1971 to 1973 also reflect U.S. bombing activities in Vietnam. And finally, the year 1974 shows a significant decline in U.S. forces on Guam reflecting the United States' winding down of military activity in the Western Pacific. According to the Commander, Naval Forces Marianas (ComNavMar), it is anticipated that military forces on Guam during the next three years will probably remain stable at the 22,000 level.

Since military construction spending and federal income taxes returned to Guam are expected to decrease, this will have a direct impact upon local government revenues which will accordingly decrease.

Table No. II also reflects U.S. Department of Labor policies as they apply to Guam. Statistics on parolees reflect the Parolee Program extended to Guam during the 1960's, and the fact that the Program was terminated as of December 1974--with the exception of 216 parolees who were permitted to remain on the island until June 30, 1975. The statistics on H-2 aliens also indicate that an Expanded H-2 Program for Guam was initiated at the end of 1969 and is still in effect. Both the Parolee and Expanded H-2 Programs were established to enable employers to import alien labor where laborers were not available on Guam. The Parolee Program permitted the importation of aliens for the construction and entertainment industries only. The expanded H-2 Program, on the other hand, permits the importation of a larger variety of workers for temporary purposes only, and, as of February, 1974, no less than 7,806 alien workers were employed on Guam.

Because of a current recession in Guam's economy it is anticipated that during the next two years the total number of H-2 alien workers will decline.

Analysis of 1970 Census

The 1970 Census of Population for Guam yielded some interesting data about the people of Guam when compared with previous Census data, or with comparable data for the United States. Overall, the data revealed a population which was youthful and growing, mobile, and fairly well educated.

The Table No. III indicates, the median age for males in 1970 was older than the median age for females, which was opposite that of the United States. Military age males and single contract laborers comprised a relatively large portion of the population in 1970. The urban population by Census definition was 25.5% of the total Guam population. The urbanized area around Agana, including the election districts of Agana; Agana Hts.; Mongmong, Toto and Maite; Sinajana; and Tamuning had 26.4% of the population in 1960, and this increased to 29.5% of the population in 1970.

The total foreign born increased by 3,785 during the decade to a 1970 total of 13,484 (Table No. IV). However, the 'year of immigration' data (Table No. V) indicates that 11,350 of the 13,484 foreign born on Guam in 1970 immigrated to Guam during the previous decade. This means that of the 9,699 foreign born on Guam as of 1960, some 7,565 left Guam or expired during the decade. This represented 78% of the foreign born on Guam in 1960.

Table No. VI contains information on the number of children born per 1,000 women, and per 1,000 women married. Among the younger women there was a significant drop in the number of children born per 1,000 women married. Guam's birth rate in 1970 was approximately 34 per 1000. While this was considerably lower than the rate experienced in the early postwar period (over 40 per 1000) the death rate also dropped considerably 4 per 100. As a consequence, in 1970 Guam had a rate of natural increase (excluding migration) of 3%. Considering the heavy pattern of migration, the overall annual growth rate of the population was close to 7%.

While Guam's population underwent a period of relatively rapid growth during the 1950-1970 period, there was some out-migration as well. However, this out-migration was much less than that experienced by American Samoa which, in 1970, had more of its people living in the U.S. Mainland than on Samoa itself.

Population Projections

The total population of Guam over the next three years to 1978 is expected to increase at a considerably slower rate than in the past, on the following assumptions: that (according to ComNavMar) the number of U.S. military and their dependents are expected to stabilize at the 22,000 level over the next three years; that Guamanians will continue to increase at the rate of 2.6% per year; that statesiders will continue to increase at the rate of 3.2% per year; that permanent residents will increase at a more moderate rate of 11% per year (increase to date has been 17.26%); and, finally, on the assumption that the number of H-2 aliens will decline to a level of 5,000 over the next three years based upon a decrease in construction activities and the increased availability of trained local labor.

We thus anticipate that by 1978 Guam's total population will approximate 116,018. The chief variable factor which could significantly increase or decrease this projection relates to the U.S. Department of Defense activities in the Western Pacific. Withdrawal of U.S. forces from either the Philippines or Japan, or both, could also have a considerable impact on Guam's population increasing the total by several thousands. The condition of the local economy will also have an impact upon the number of alien workers imported to Guam, and the number of aliens and U.S. citizens attracted to Guam to conduct business on the island.

Impact of Population on Potential Industry:

During the past eight years since Guam's private or civilian economy was first born, the small size of Guam's labor force has been a deterrent to the location of industry on Guam. As of 1970, over 50% of Guam's population was under 20 years of age, and the majority of resident adults available for employment were untrained and unskilled.

At the present time Guam's labor pool remains relatively limited and unskilled. As the size of the labor force increases, however, there will be an increased need to train men and women for employment in the construction industry, farming, the tourist industry and other types of industry likely to succeed on Guam. A relatively large number of women unemployed to date could provide a suitable labor force for such industries as garment manufacturing, assembly plants, and handicrafts.

CHART NO. I

RATE OF EMPLOYMENT

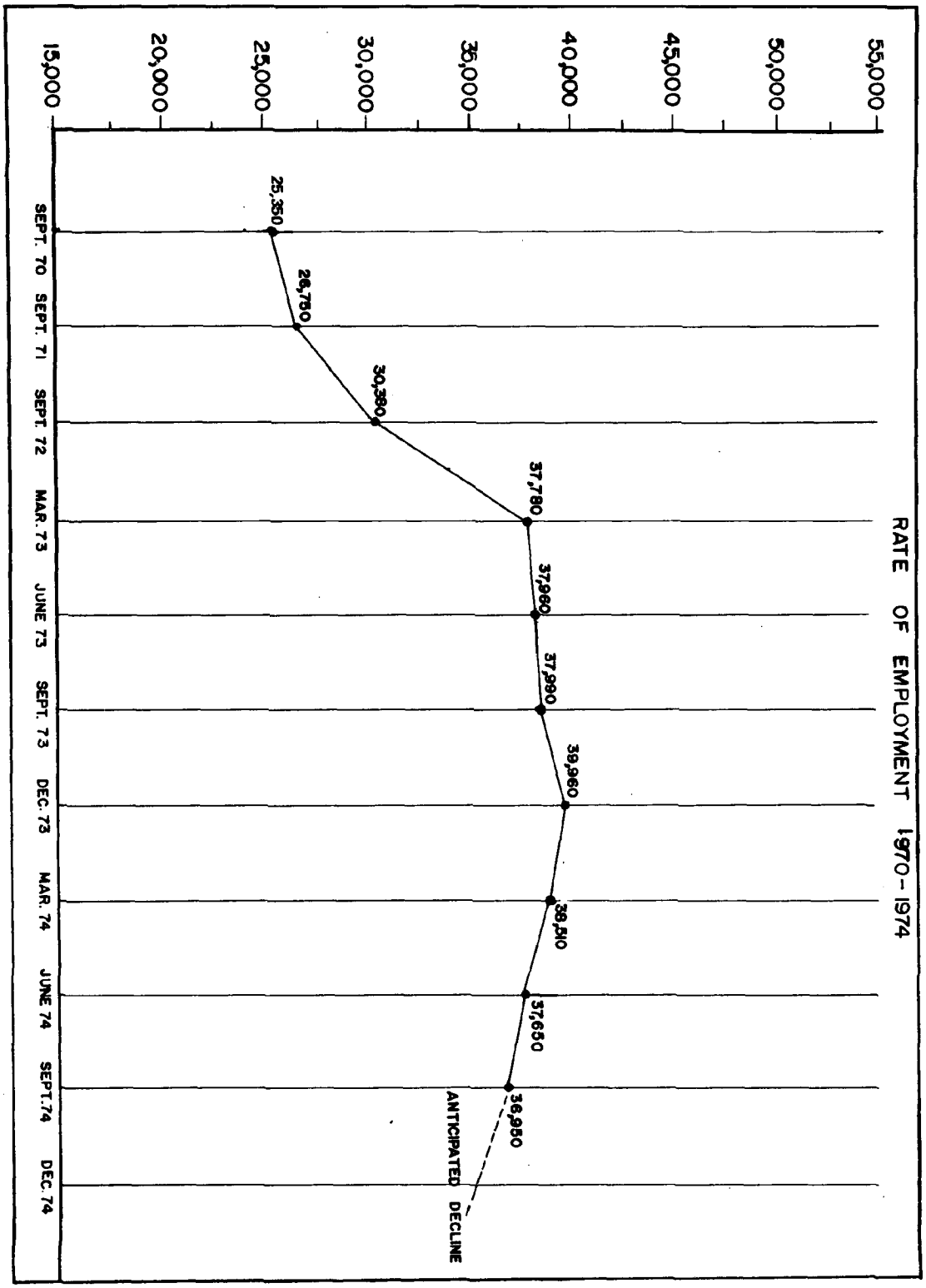


CHART NO. 2

DISTRIBUTION OF EMPLOYMENT

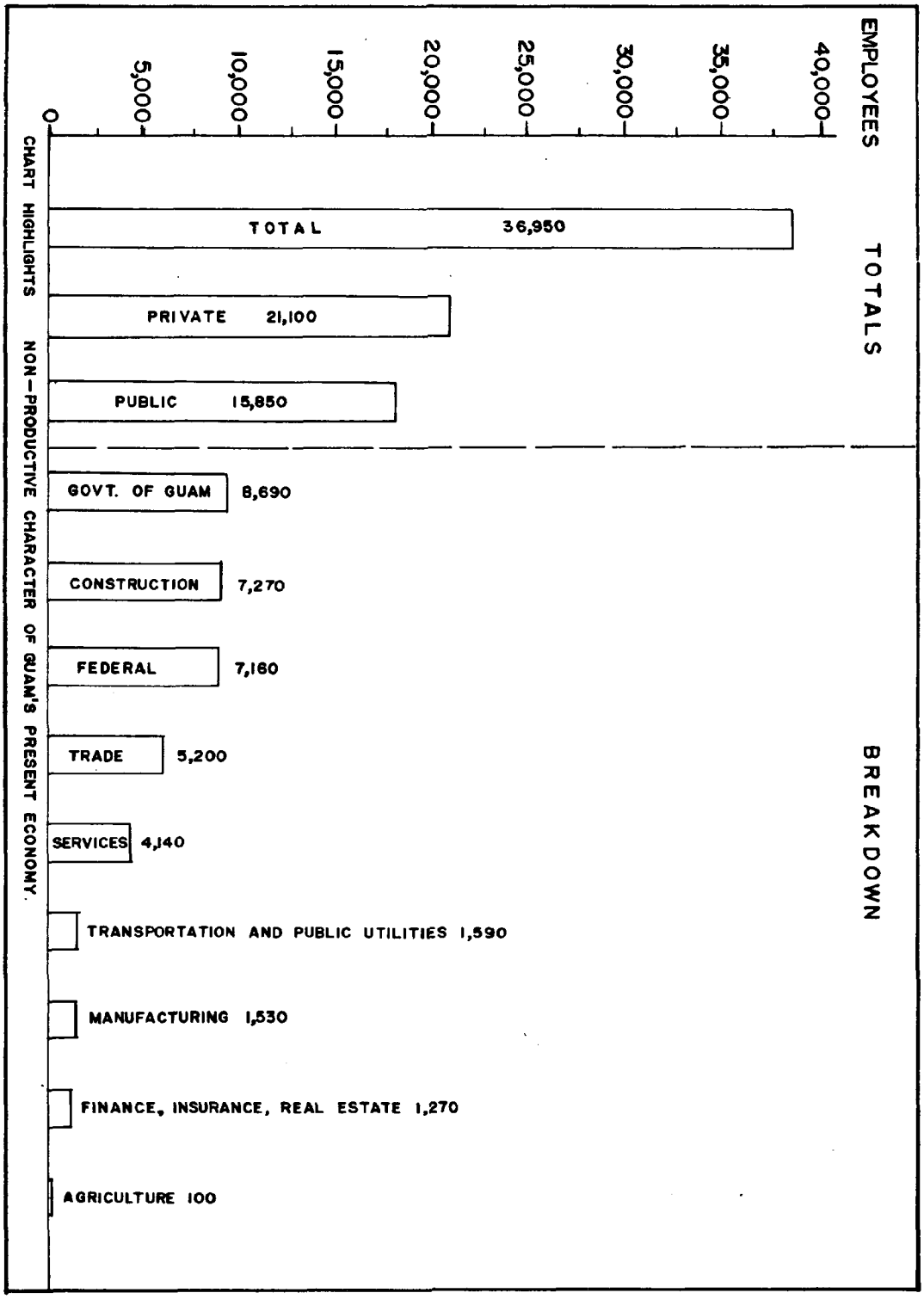


TABLE NO. X

SEPTEMBER, 1974

EMPLOYMENT

Employees on payrolls on Guam by industry division

Industry division	Sept. 1973	June 1974r	Sept. 1974p	Change from: Quarter Ago	Change from: Year Ago
TOTAL	37,990	37,610	36,950	-660	-1,040
Private Sector	22,590	21,950	21,100	-850	-1,490
Agriculture	80	120	100	- 20	+ 20
Construction	8,170	7,820	7,270	-550	- 900
Manufacturing	1,620	1,730	1,530	-200	- 90
Transportation & public utilities	1,750	1,640	1,590	- 50	- 160
Trade	5,490	5,400	5,200	-200	- 290
Finance, Insurance & real estate	1,380	1,260	1,270	+ 10	- 110
Services	4,100	3,980	4,140	+160	+ 40
Public Sector	15,400	15,660	15,850	+190	+ 450
Federal Government	7,430	7,320	7,160	-160	- 270
Territorial Government	7,970	8,340	8,690	+350	+ 720

r=revised
p=preliminary

*Employment statistics for December, 1974 show total employment of 36,239 which represents a decline of 3,701 jobs since December, 1973.

February 18, 1975

Source: Department of Labor, Government of Guam

TABLE NO. XI

Employees on payrolls on Guam, by industry division: specified dates, 1970-74.

Date 1/	Private sector									Public sector		
	Total	Total private	Agriculture	Construction and mining	Manufacturing	Transportation and public utilities	Trade	Finance, insurance and real estate	Services	Total public	Federal	Territorial
	Number (unit of measure=10)*											
Sep 70	25,350	13,180	30	4,400	940	1,530	3,580	540	2,160	12,170	6,680	5,490
Sep 71	26,750	14,270	40	5,480	1,060	920	3,480	770	2,520	12,480	5,910	6,570
Sep 72	30,380	17,020	30	7,150	1,000	780	4,620	640	2,800	13,360	6,090	7,270
Mar 73	37,780	20,680	50	7,700	1,080	1,710	5,740	800	3,600	17,100	7,480	9,620
Jun 73	37,960	21,490	80	8,350	1,550	1,590	5,060	1,000	3,860	16,470	7,560	8,910
Sep 73	37,990	22,590	80	8,170	1,620	1,750	5,490	1,380	4,100	15,400	7,430	7,970
Dec 73	39,940	23,820	110	8,730	1,790	1,710	5,830	1,160	4,490	16,120	7,410	8,710
Mar 74	38,510	22,560	120	8,280	1,760	1,530	5,640	1,200	4,030	15,950	7,380	8,570
Jun 74	37,650	21,990	120	7,820	1,730	1,640	5,380	1,270	4,030	15,660	7,320	8,340
Sep 74	36,950	21,100	100	7,270	1,530	1,590	5,200	1,270	4,140	15,850	7,160	8,690
Dec 74	36,239	20,700	100	6,300	1,400	1,600	5,900	1,300	4,100	15,539	6,739	8,800
	Percent distribution											
Sep 70	100.0	52.0	0.1	17.4	3.7	6.0	14.1	2.1	8.5	48.0	26.4	21.7
Sep 71	100.0	53.3	0.1	20.5	4.0	3.4	13.0	2.9	9.4	46.7	22.1	24.6
Sep 72	100.0	56.0	0.1	23.5	3.3	2.6	15.2	2.1	9.2	44.0	20.0	23.9
Mar 73	100.0	54.7	0.1	20.4	2.9	4.5	15.2	2.1	9.5	45.3	19.8	25.5
Jun 73	100.0	56.6	0.2	22.0	4.1	4.2	13.3	2.6	10.2	43.4	19.9	23.5
Sep 73	100.0	59.5	0.2	21.5	4.3	4.6	14.5	3.6	10.8	40.5	19.6	21.0
Dec 73	100.0	59.0	0.3	21.9	4.3	4.3	14.6	2.9	11.2	40.4	18.6	21.8
Mar 74	100.0	58.6	0.3	21.5	4.6	4.0	14.6	3.1	10.5	41.4	19.2	22.3
Jun 74	100.0	58.4	0.3	20.8	4.6	4.4	14.3	3.4	10.7	41.6	19.4	22.2
Sep 74												
Dec 74												

* Rounded off to the nearest 10--Department of Labor, Bureau of Labor Statistics.

1/ In general, data refer to persons who worked during, or received pay for, any part of the pay period that includes the 12th of the month.

2/ Estimates

SIZE OF LABOR FORCE**

The potential size of the resident civilian labor force on Guam, aged 16 years and over, as of September, 1974, was approximately 31,849--excluding non-immigrant alien labor.

Actual Employment

As of September, 1974, according to the Quarterly Report submitted by the Bureau of Labor Statistics, Guam Department of Labor, a grand total of 36,950 persons were employed on Guam. Of this number, approximately 8,000 were non-immigrant laborers.

Total employment statistics since 1970, including alien labor, show that employment on Guam increased from 13,180 in September, 1970, to a peak of 39,940 in December, 1973. Thereafter, employment declined to 36,950 as of September, 1974 (See Chart No. I).

Of the potential local labor force of 31,849 persons over 16 years of age, as of August, 1974, 28,950 were actually employed and an estimated 2,899 were unemployed. *

Characteristics of the Guam Labor Force**

(a) As of August, 1974, many more males than females made up the work force on Guam. Approximately 70% of the total work force were males, and 30% were females. The larger number of males was accounted for, in part, by the fact that 98% of the 8,000 immigrant alien laborers were male.

(b) Statistics recorded for August, 1974, indicate that the majority of male and female workers (excluding non-immigrant aliens) fell into the 30-50 year age group, and that there were almost twice as many males in that age group as females.

(c) In the 30-50 year age group there were four times as many unemployed females as males.

(d) There was an unemployment rate of 5.7% as of August, 1974.

(e) As much as 39% of the total work force in August, 1974 was comprised of aliens. Non-immigrants represented 25%, and alien immigrants represented 14%.

(f) March, 1974 statistics indicated that over 75% of all non-immigrant alien workers on Guam were concentrated in the construction industry, and that aliens comprised 82% of the total employed in that industry.

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*Based on a pilot study of unemployment conducted by the Bureau of Labor Statistics, Guam Department of Labor, August, 1974.

**All statistics on labor were obtained from the Bureau of Labor Statistics, Guam Department of Labor.

(g) September, 1974, statistics show that 59% of all Guamanian workers were absorbed in federal and territorial government employment, leaving only 41%--9,000 available to fill jobs in the private sector of the economy.

(h) Of the 21,100 workers employed in the private sector of the economy, in September, 1974, 60% were a combination of alien immigrant workers, non-immigrant workers and off-island contract employees.

(i) The public sector of the economy in September, 1974, employed more than twice as many persons (15,850) as the leading industry in the private sector of the economy (7,270 employees in construction).

UNEMPLOYMENT

An unemployment survey was conducted by the Bureau of Labor Statistics, Guam Department of Labor, in August, 1974. This was the first time such a survey had been conducted on Guam. It was patterned after the U.S. Current Population Survey, utilizing concepts in line with federal standards.

For purposes of the survey, 'unemployed' was defined as any person 16 years of age or over who was unemployed at the time of the survey; who was available for work, and who had within the previous four weeks applied for work. Included in the unemployed total were persons who had never worked, persons who had been laid off, persons who had voluntarily resigned from employment, and persons waiting to report to new jobs within thirty days.

It should be noted the survey was made during the month of August when students had newly graduated from high schools, or were on their summer vacation from school or college and looking for temporary employment.

The survey concluded that 2,899 persons were unemployed. This figure represented 9.6% of the local civilian labor force--non-immigrant aliens excluded.

Analysis of Survey:

An analysis of the survey indicates that of the 2,899 unemployed, no less than 1,252 were 19 years of age and under. Since most high school students on Guam graduate at the age of 18 or 19, it is estimated that as many as 75% of the 1,252 youngsters were on their summer vacation looking for temporary summer employment. This would leave approximately 300 youngsters on the job market genuinely looking for permanent employment (the Bureau concurred in this estimate).

One-third of the 605 men and women within the 20-24 age group are also likely to have been college students on their summer vacation looking for temporary work. This would leave approximately 400 young men and women in the 20-24 age group newly on the market looking for permanent employment.

Thus, at the time of the survey in August, 1974, a new crop of approximately 700 youngsters 24 years of age and under had entered the job market in search of employment.

On the basis of these estimates, a more realistic assessment would indicate that 1,749 persons were unemployed, rather than 2,899. This would reduce the rate of unemployment from 9.6% to 5.7%.

According to the survey, the average duration of unemployment was found to be only 3.5 weeks, and 61% of the unemployed were found to have been jobless for a period of less than five weeks. This would tend to confirm the fact that many of the so-called unemployed were students. Only 1.5% of the total number of unemployed had been without jobs for longer than 27 weeks, and none were reported to have been unemployed for as long as one year.

The survey did demonstrate, however, that there were almost twice as many unemployed females aged 20 and over as unemployed males--1,044 females to 564 males.

Conclusion:

The survey's 9.6% unemployment figure is misleading as to the real situation on Guam during August, 1974. A more realistic figure would place unemployment at 5.7%. The survey does not truly reflect Guam's very serious labor problems which lie more in the area of underemployment and inadequate skills.

The statistics of real significance and concern in the pilot study were those reflecting the number of youngsters permanently out of school looking for employment, and the large number of women between the ages of 20 and 49 on the labor market who had limited experience and skills to offer.

It would probably be true to say that as the cost of living increases on Guam, more and more women will enter the job market and attempt to obtain jobs to supplement their husband's income. Many of these women will require training before they are successful in obtaining employment.

The large number of youngsters on the 'unemployment' lists is also a matter of concern. Past records show that many boys and girls leaving school have had difficulty finding satisfactory employment. Many have graduated without any specific marketable skills, pointing to the need for school curricula to be re-oriented towards career

and vocational education.

Government Employment:

The major source of employment on Guam are the federal and territorial governments which, as of September, 1974, employed 43% of the total work force--15,850 persons out of 36,950, and 59% of all local resident workers (See Chart No. II).

These top heavy statistics bear their roots in Guam's recent history. During the early post-war years, when private industry on Guam was almost non-existent due to the destruction of the war, the Naval government and territorial government which succeeded it, adopted the paternal policy of providing employment for all who sought it. Immediately after the Second World War, it had been a case of providing food, shelter and the necessities of life for the entire resident population, in return for their labor. Thus, up to 90% of Guam's residents were employed by the territorial and federal governments during the decade which followed the war.

During the 1960's, with the infusion of Rehabilitation funds for construction of public facilities, the private sector of the economy began to recover from the devastations of war and typhoons. Because the bulk of the local labor force was employed by the government, and because local residents were unskilled and untrained for modern industry, employers in the private sector found themselves hard-pressed for labor, and resorted to the importation of alien laborers wherever the federal law permitted. The majority of local residents, meanwhile, continued to seek employment with government agencies, and continued to find employment despite their inadequate education and training.

With the growth and expansion of the island's economy during the past decade, increasing numbers of Guamanians began to accept employment in the private sector of the economy. The majority, however, found themselves occupying the lower strata of positions, while persons from the U.S. mainland and from countries in the Orient held the better professional, managerial and skilled positions.

Problems in the Public Sector:

Military activities in the Western Pacific have declined during the past year as a result of the end of U.S. involvement in the Vietnam War and the reassignment of ships, aircraft and personnel to other parts of the world. This has resulted in a decrease in the workload of some of the military installations on Guam--particularly at the Naval Ship Repair Facility. It is predicted tht employee lay-offs might occur at the Guam SRF within the next few months, which could result in throwing as many as four-hundred workers on to the labor market. *

*As of June, 1975, SRF will lay off 350 employees and NSD and PWC will lay off 50 employees.

Additionally, faced with the current economic recession, reduced revenues and inflationary costs, it is questionable whether the Government of Guam will be able to continue its paternalistic role of chief employment agency. A freeze on recruitment has, in fact, been put into effect, as of February, 1975.

Theoretically, the government could mechanize many of its operations and thereby reduce the cost of its heavy payroll. Mechanization, however, would result in throwing many employees who have limited skills onto the labor market. Many of these would have great difficulty in adjusting to the demands of the private sector at salaries and wages considerably lower than they have been accustomed to. Some would be unable to find alternative employment due to their lack of training and skills. The Government of Guam would thus be creating a serious unemployment crisis at a time when the cost of living has already cut into acceptable standards of living.

Assuming the Government of Guam were to mechanize its operations and release many of its employees to work in the private sector of the economy, it could not be assumed that private industry would be able to absorb them. As a result of the current recession, private employers are also curtailing their operations and their efforts to recruit. Some construction companies have gone out of business and have returned their alien laborers to their point of hire. Marginal enterprises on Guam are folding up due to the recession and high rates of inflation. Guam's limited natural resources, the narrow base of her economy and her relative lack of general economic development render it difficult at the present time for private industry to absorb all the additional job seekers who may soon, as a result of government layoffs, be flooding the market.

Principal Labor Needs:

Distribution of Labor. A profile of the distribution of labor on Guam as of September, 1974, indicates that of the total 36,950 workers, 21,100 (57%) were employed in the private sector, and 15,850 (43%) in the public sector.

The Private Sector:

The largest employer in the private sector as of September, 1974, was the construction industry which employed 34% of all private sector employees (See Table No. X). The second largest private employers were the wholesale and retail trades, with 24.6%, followed by the services industry with 19.6%. Transportation and public utilities employed 6% and agriculture only .5%.

Construction:

From this profile of employment in the private sector it is clear that construction is still the prime industry on Guam today. Statistics covering the period from September, 1970 to September, 1974 (Table No. XI) indicate, however, that construction activities rose to a peak in December, 1973, when 8,730 workers were employed, and subsequently declined to 7,270 workers in September, 1974. It is believed that this decline will continue over the next twelve months. Lay-offs, however, will not directly affect too many Guam resident workers since 80% of construction employees are non-immigrant aliens who will be returned to their point of hire.

Trade:

The second largest employer was the trade industry. It is evident that on an island where natural resources are limited and where manufacturing and agriculture are still in the embryo stages of development, it is necessary to import over 90% of all commodities. Thus the trade industry is relatively large. Like the construction industry, the trade industry reached a peak of activity in December, 1973, employing 5,830 workers, and since that date its employment has declined to 5,200.

Service:

The services industry reflects the continued growth of tourism on Guam. Since September, 1970 when it employed 2,160 workers, it has grown consistently to a peak in September, 1974, when it employed 4,140 workers. Despite the current recession, there has been no decline in the tourist industry, and it is believed--barring any serious depression in the Japanese economy--that tourism will continue to expand over the next few years.

Transportation and public utilities reached a peak of employment in September, 1973 when it employed 1,750 workers. Since that date employment has declined to 1,590 as of September, 1974.

The manufacturing industry grew to a peak of employment in December, 1973, when it employed 1,790 persons. Employment has since declined to 1,530 as of September, 1974. Finance, insurance and real estate also reached a peak in September, 1973 and subsequently declined to 1,270 employees in September, 1974.

Agriculture which started with a low of 30 employees in September, 1970, reached a peak of employment at 120 in March, 1974, and declined to 100 employees as of September, 1974.

With the exception of the services industry catering to tourism, all industries in the private sector of the economy experienced a decline in activity between September or December, 1973, and September, 1974, with

the consequent loss of 2,990 jobs--1,460 of which were in the construction industry manned primarily by non-immigrant aliens, and 1,530 of which were jobs held by resident or contract hires.

The Public Sector:

In the public sector, while employment by federal agencies has fallen off from 7,560 employees in June, 1973 to 7,160 employees in September, 1974, Table No. XI shows that the Government of Guam has retained a fairly constant level of employment with an average of 8,500 employees over the last two-year period.

Labor Needs:

Theoretically, any surplus of local resident labor should go towards the displacement of some of the 8,000 non-immigrant aliens presently on Guam. Although the volume of construction has declined since December, 1973, moderate activity may still be anticipated during the next few years as tourism continues to expand, and as more houses are constructed to replace the large number of substandard dwellings. Re-education and intensive training in construction skills, however, are needed to draw Guamanians into the construction industry.

Employment opportunities also lie in the service industries catering to tourism. Hotel managers complain of their inability to recruit an adequate staff on Guam. Again, intensive re-orientation of Guam's education system is needed together with vocational training programs to absorb Guamanians into the service industries. Guamanians generally decline to accept employment as waiters, waitresses, cooks, barbers, and other types of service which they consider subservient.

Many skilled positions such as auto mechanics, electricians, refrigeration repairmen, accountants, etc., are held by off-island personnel--aliens or U.S. mainland hire--since relatively few local residents have been qualified to enter these fields.

Additionally, agriculture and fishing at the present time are almost wholly undeveloped in terms of their potential. However, the high cost of food importation, threats of world-wide food shortages, and the fact that Guam's soil and coastal waters were once reported capable of producing sufficient food to support a population of 50,000 Chamorros*, has had some impact on the present Administration's economic development policies. The development of agriculture and fishing is high on the list of the Governor's priorities. Development of these areas, however, will require intensive education and training of local manpower, along with sufficient incentive and motivation.

In summary, the principal labor needs of Guam in the immediate future lie in the areas of construction (to replace imported aliens), the service industries (including hotel related services, general automotive and

*"A Complete History of Guam" by Paul Carano and Pedro C. Sanchez, page 69.

mechanical repair and maintenance services, expert business services), agriculture and fishing.

Wage Rates:

One major problem confronting Guam is that her economy is attuned to the economic system of the United States, while the economic system of her closest neighbors in the Orient operate on an entirely different 'wavelength'. Thus, while federal labor laws and standards apply to U.S. citizens residing on Guam, citizens of the Orient are not, of course, covered by the same minimum and prevailing wage laws and receive considerably lower wages and salaries than those prevalent on Guam. This situation creates a problem on Guam. Living 'next door' to a large market of cheap labor, Guam employers find it advantageous to import alien labor, even though certain restrictions and requirements are placed upon their recruitment.

Guam Wages:

In tune with federal requirements, the Government of Guam has established its own fair labor standards legislation and a Minimum Wage and Hour Act. Minimum wages on Guam rose from $2.05 per hour in the period ending July 1, 1974, to $2.25 per hour thereafter. Moreover, Section 46005 of the Guam Code requires employers to pay employees time and a half for any work in excess of 40 hours per week.

Although the minimum wage may appear to be generous, it is not generous in relation to the very high cost of living on Guam. Moreover, federal and Government of Guam wages and salaries have always been relatively higher than those in the private sector of the economy. Wages and salaries in the private sector of the economy are considerably lower than those prevalent on the U.S. mainland--which results in many of Guam's most capable citizens migrating to Hawaii or the mainland.

Alien Labor:

Guam is required by federal law--the Davis-Bacon Act--to establish a system of prevailing wage rates for various categories of labor--to which all employers of aliens must adhere. Ironically, there is no requirement to pay Guamanians the prevailing wage rates, thus Guamanians who have trained and qualified as carpenters, etc., are frequently offered the minimum wage of $2.25 per hour instead of the higher prevailing wage rate offered aliens. This has the impact of either discouraging Guamanians from entering the construction field, or if they do sacrifice the time and money to undergo training, they subsequently leave Guam to earn higher salaries in the U.S. mainland.

The prevailing wages on Guam are, on the contrary, attractive to aliens in the Orient where wages are extremely low. Aliens are thus glad to be hired to work on Guam, and inevitable loopholes in the law make it possible for construction companies to exploit the cheap alien labor market despite provisions of the Davis-Bacon Act. This has the impact of depressing the overall level of wages on Guam.

Vocational Training Programs:

The Guam Vocational and Technical High School offers students a combination of academic and vocational training for the last three years of their secondary education. Half of the day is spent on regular high school academic courses, and the other half on vocational training. Courses include such areas as: the machine shop (metal work); auto mechanic; auto body; diesel; welding; heavy equipment operation; small engines; masonry; carpentry; electronics; refrigeration; distributive occupations; clerical; secretarial; accounting, etc.

During the current year, FY 1975, there are over 800 students, boys and girls, attending the school, and drop-out rates are reported to be low compared to drop-out rates at the regular high schools.

In addition to the Vocational and Technical High School, there are over a dozen training programs by the Guam Department of Labor, many of which are now consolidated in the Comprehensive Employment and Training Act (CETA) Program. These programs include: On the Job Training, OJT; Jobs Optional Program; Job Corps Programs; Apprenticeship and Training Program; Operation Mainstream; Public Employment Program; Neighborhood Youth Corps Program; NYC In-School Program; Public Service Career Training; Programs under the Manpower Development and Training Act; Win-Work Incentive Program, and others.

Some of the above programs have met with only marginal success due to the large number of drop-outs. The Jobs Optional Program, for example, enrolled 71 persons in FY 74 but graduated only 29. The Apprenticeship and Training Program was notably unsuccessful, possibly because it offered a wage of only $2.30 per hour while the Navy Apprenticeship Program offered between $3.00 and $5.00 per hour. Since the creation of the program in 1964 there have been over one-thousand participants. However, only 50 apprentices successfully obtained their Journeyman certificates.

The Neighborhood Youth Corps program provides work experience training and remedial education where necessary to school drop-outs between 16 and 21 years of age--an inherently difficult group to assist. Of 87 students enrolled in FY 74, 24 were successfully placed in jobs, 49 students dropped out of the program, 10 students enrolled in other programs, and four returned to school.

The WIN Program based on the Talmadge Amendment to the Social Security Act, which became effective in July 1972, for persons receiving Aid to Families with Dependent Children, met with greater success. Some 213 persons enrolled in FY 74 and of this number, 175 were successfully placed in jobs.

The courses offered in these programs ranged from the Culinary Arts, to construction skills, to accounting, to secretarial skills, many of them overlapping or duplicating courses offered at the Guam Vocational Technical High School.

A four-year apprenticeship program administered by the U.S. Navy installations on Guam since 1957 has processed 1,172 apprentices to date. The program was designed specifically to enable the military to recruit locally rather than import alien labor. Of the 1,172 apprentices, a total of 599 successfully completed their training and graduated at the journeyman level. At the present time, the Naval Ship Repair Facility is training 38 apprentices in the industrial trades and the Naval Public Works Center is training 49 apprentices. Because military activities are on the decline, however, the training program may be curtailed or reduced in scope in future months since there may be an insufficient number of jobs available to offer the apprentices.

Problems in Training:

Many of the training programs on Guam have failed to graduate a large percentage of students, partly because local traditions, cultural influences and attitudes have frequently worked against the success of the programs. It should be considered significant, also, that more apprentices were graduated from the Navy apprenticeship program where wages ranged from $3.00 per hour to over $5.00 per hour, than from the Apprenticeship and Training Program sponsored by the local Department of Labor and the Guam Contractors' Association, where apprentices were offered only $2.25 per hour.

Physical labor, whether it is in the fields or in construction, has been considered menial by many of Guam's residents. Additionally, the hot humid climate renders physical exertion exhausting. By contrast, work in government offices is cool, clean and relatively attractive. Also, wages paid in the private sector by construction companies are low when compared with government wages.

Occupations such as cooks, chamber maids, waitresses, barbers, etc., have also been considered menial by local residents. These are the types of jobs offered by the hotels catering to the growing tourist industry. Again, government jobs are considered superior, more comfortable and better paid.

TABLE NO. XII

GROSS RECEIPTS

Consolidated Gross Business Receipts by Sector: FY 1964-1974
($ Thousands)

Fiscal Year	Agriculture *	Contracting	Manufacturing	Transportation	Wholesale	Retail	Insurance, Real Estate, Finance	Service	TOTAL	
1964		44,063	3,608	156	16,164	43,299	6,111	11,324	124,725	
1965		42,531	4,106	154	17,988	44,382	7,230	11,710	128,102	
1966		42,218	4,471	199	20,534	50,178	7,698	11,236	136,534	
1967		36,332	4,898	208	34,599	58,897	9,887	13,383	148,204	+ 8%
1968		33,960	5,021	234	27,269	70,583	13,315	17,760	168,142	+ 13%
1969		42,246	5,151	93	29,711	74,668	15,649	21,627	189,145	+ 12%
1970		53,131	6,307	135	29,800	91,092	19,694	26,695	226,854	+ 20%
1971		69,458	39,833	148	40,232	107,885	24,607	41,228	323,391	+ 42%
1972		86,269	41,390	213	46,514	162,375	34,568	51,764	423,093	+ 31%
1973	207	112,117	44,278	5,735	59,573	168,744	51,381	56,922	499,056	+ 18%
1974	655	126,237	99,534	14,812	42,633	196,336	65,117	75,485	620,810	+ 24%

* Prior to 1973, Agriculture was not included in total gross receipts.

Source: Economic Research Center, Department of Commerce, Government of Guam.

Conclusions:

In the past, the incentive to train for the industrial trades continues to offer wide-scale employment to its residents and the private sector does not pay comparable wages, the local labor pool will be drawn into the public sector rather than into private industry, and private industry in general will continue to be starved of labor as it has been since the 1950's.

Responding to the pressures of inflation and recession, the Government of Guam has, since February, 1975, frozen recruitment, and diminishing revenues may force the local government to actually reduce its payroll in the near future. Whether employees are actually laid off or not, in the immediate future there will be an urgent need to train local residents to fill positions in private industry. Prime candidates for such training will include new school and college graduates, housewives with no previous work experience, and ex-government employees who have no specific skills to market.

The government for its part must attempt to re-orient local residents towards the realities of the Guam economy, and implement career education at an early age. It must also attempt to expand the base of the economy so that in the event military activities on Guam decrease still further, the economy will be sufficiently diverse and capable of absorbing the surplus of public sector employees.

Finally, if Guam is to retain a well-trained labor pool, the private sector will have to upgrade its level of wages and offer increased employee benefits. Loopholes in the law, and practices which enable the employer to exploit the availability of cheap alien labor in the Orient should be eliminated to prevent continued depression of the Guam wage levels.

Educational Levels:

No formal survey of education levels on Guam has been conducted since the U.S. Census of 1970. The 1970 Census Report* disclosed that the median number of school years completed for males over 25 on Guam was twelve. For females, the median figure was 11.7 years.

According to the 1970 Census, 49.5% of the 32,976 people on Guam over 25 years of age had completed four years of high school or more. Of the 18 to 24 year olds, 66.5% had completed 12 or more years of schooling.

*U.S. Department of Commerce, Bureau of the Census publication, PC (1) - B 54. Statistical Abstract of the United States, 1971.

For the United States as a whole, the percentage of population having completed high school in 1970 was 55.2 compared to 49.5% for Guam; and the percentage of college graduates was 11.0% as compared to 10.6% for Guam.

During the five years which have passed since the 1970 U.S. Census it is believed that the average level of education on Guam has been upgraded, so that of the total population over 25 years of age, approximately 55% have now completed four years of high school or more. Also, among the 18 to 24 year-olds, approximately 70% have completed 12 or more years of schooling.

The Economy

Principal Economic Activities: Two indices of economic activity on Guam are employment statistics and gross receipts by industry. Guam has not yet established a Gross Island Product series, the lack of which hinders analysis of the contribution of various economic activities to the island economy.

Employment: Chart No. II showing the distribution of employment as of September, 1974, indicates that the Government of Guam is the single largest employer on the island, with the construction industry taking second place and the federal government running up a close third.

The most recent estimates received for December, 1974, however, show that employment in the construction industry has declined from 7,270 in September, 1974 to approximately 6,300 in December, 1974. Based on economic trends, it is predicted that activities in the construction industry will continue to decline during the next twelve months as the recession registers its full impact on Guam's economy.

Thus, as of December, 1974, employment in the federal government exceeded construction employment by an estimated 439 employees. It is clear that Guam's economy continues to rely heavily on government agencies for support (See Table No. XI).

The two other employers of significance include the trade and service industries where employment has remained fairly stable since September, 1973. For so long as Guam relies heavily upon imports, the trade industry will, presumably, remain an important factor in Guam's economy. Steady employment in the services industry which caters also to tourism reflects the fact that the tourist industry on Guam continues relatively unaffected by the impact of high inflation and deteriorating world economic conditions.

Gross Receipts: Total Gross Receipts, as indicated by Table XII, show that modest annual increased between 1964 and 1969 gave way to large increases in annual gross receipts to Fiscal Year 1974.

The high rate of inflation (23% between Fy 1972 and FY 1974), during the last two years, however, reduces the true rate of increase in gross receipts to more modest proportions. A levelling off or even a decline in total gross receipts is projected for Fiscal Year 1975 and Fiscal Year 1976.

Recent Economic Trends

The most recent statistics reflecting trends in Guam's economy suggest that Guam is currently experiencing a recession.

Employment: Total employment on Guam increased annually from 1964 until December, 1973, when employment reached a peak from which it has since declined. Total employment in December 1973 was 39,940 as compared to an estimated 35,000 as of March, 1975. Employment in the construction industry - Guam's major industry - has declined from 8,730 in December, 1973 to an estimated 5,103 in March, 1975.

The number of U.S. military and their dependents on Guam has decreased from 29,000 as of June, 1973, to 22,590 as of June, 1974. Employment by federal agencies has also declined from 7,560 in June, 1973, to 6,739 as of December, 1974. Additionally, 592 employees at naval installations have received their Reduction in Force notices and 458 positions have been abolished effective June, 1975.

Since Government of Guam revenues for Fiscal Year 1976 are expected to decrease from an original estimate of $128 million in FY 1975 to $103 million in FY 1976, it is anticipated that there will be a decline in Government of Guam employment next fiscal year bringing total employment on the island down to a low of approximately 33,000 by December, 1975.

Economic Indicators: Other statistics indicating that Guam's economy is suffering a recession include building permits which declined from 4,118 in calendar year 1973, to 2,903 in calendar year 1974. Business licenses have declined from 9,918 in FY 1973 to 7,339 in Fiscal Year 1974. Gross receipts for Fiscal Year 1974 levelled off when compared with figures for Fiscal Year 1973, and when adjusted for inflation. Gross receipts for the wholesale industry actually declined by 28.5% in Fiscal Year 1974, and surface cargo decreased by 2.8%.

Rental occupancy is down to 67%, and hotel occupancy is also said to have declined. The recent 20% reduction in charter flights between Guam and Japan is expected to have a detrimental impact on the Guam tourist industry. The withdrawal of TWA from the Western Pacific and Guam will also result in a considerable loss of revenues to the Guam International Air Terminal. Other major industries on Guam have also ceased operation, including the San Miguel Brewery Company, and many small construction companies.

The economic trends point to a continued recession for the remainder of calendar year 1975, and slow recovery anticipated in 1976.

Economic Ties to the Surrounding Region:

Guam's geographic location is illustrated in Map No. 1, which shows distances to, and relative location of, various other points. A second illustration, Map No. 2, shows Guam's position in the region, an area primarily occupied by islands included in the Trust Territory of the Pacific.

Guam's 1972 population of 105,003[1/] compares with that of 114,645[2/] during the same year inhabiting the Trust Territories. Guam is currently the transportation hub of Micronesia, possessing the region's only deep-water port, through which mail air and sea cargo are transhipped. While this would suggest a centralized role for Guam as "capital" of the region, this in fact has not occurred to date, largely because of political status differences between the U.S. Trust Territory and Guam. Historically, Guam developed separately from the Northern Marianas at the end of the Spanish-American War, when Guam became a U.S. possession while the other islands were controlled by the German Empire. At the end of the First World War the Marianas were occupied by Japan, in whose hands they were to remain until the Allied liberation during the Second World War.

Since the start of the century, contact between the islands has been constrained by international politics.

It wasn't until 1962, when President Kennedy abolished the Naval Security Regulations that Guam became accessible to international travel and trade. Prior to this, no one could enter Guam without first submitting to burdensome and time-consuming clearance procedures, and almost all commerce was conducted via U.S. Navy or Navy-sponsored vessels.

The most significant event in the history of Guam's ties with Asia was the inauguration, by Pan American Airways, of a Tokyo-Guam route on May 2, 1967. Ties to Asia have progressed rapidly in the intervening years bringing investment capital, trade, and tourism, substantially to Guam's benefit.

Ties to the Trust Territory have lagged in comparison. Attempts by the Trust Territories to establish ties and membership in regional associations (United Nations agencies such as ESCAP, the Asian Development Bank, etc.) have, to date, been more successful than Guam's.

1/ Sources: Justice Dept., U.S. Immigration & Naturalization Services Annual Reports; Dept. of Public Health & Social Services, Vital Statistics Division; ComNavMar Commissioner's Office; Dept. of Commerce.

2/ 26th Annual Report of the Trust Territory of the Pacific Islands, July, 1972 to June 30, 1973, pg. 1.

Guam's self-view to date has principally been one of a distant offshore U.S. island, rather than an intregal part of Asia or of the Pacific. Its relations with the region are therefore not as strong as geography would suggest, and partly as a result, efforts are now underway in the Trust Territory to create a network of international ties parallel to Guam's, rather than to integrate with Guam's "system". The assignment of a direct Saipan-Tokyo air route (currently contested between Pan Am and Continental/Air Micronesia) may be viewed as an illustration of the movement in this direction.

Guam's Financial Resources

As experienced throughout the nation, the current recession-inflation, combined with high interest rates, has recently limited the financial resources of both the private and public sectors. Special situations exist which affect Guam. The financial resources available to the private and public sectors are discussed in that order.

Financial Resources for the Private Sector

The financial resources available to private entities are comparable to those of most American communities. Under current tight money conditions, this cannot be viewed as being excellent. Guam has seven commercial banks, including branches of six major banks: the Bank of America, Chase Manhattan Bank, First National City Bank, Bank of Hawaii, First Hawaiian Bank and the Bank of Tokyo of California. There are two savings and loan institutions and several personal credit institutions. If funds from deposits into local branch banks are not adequate, funds can be transferred from mainland banks. The extent to which this is practiced on Guam is demonstrated by the fact that loans from local financial institutions are frequently greater than deposits*. Since banking regulations require that loans be a fraction of total deposits, there is evidence that large amounts of capital for loans are transferred from off-island to branch banks on Guam. Similarly, however, funds can also be transferred from Guam to the mainland, so that ample bank credit is available on the same, but no better, terms as elsewhere in the United States. Currently the terms are not good.

The Federal Housing Administration and the Small Business Administration operates similarly on Guam as it does in the rest of the United States, and nearly all enterprises on Guam qualify as small businesses.

Efforts have been made to provide capital for private industry, but they have been limited. The Guam Economic Development Authority (GEDA), a public corporation, administers a federally financed Guam Development Fund program for which $5 million has been authorized, and $2 million has been appropriated to date. Another $1 million is currently being requested for appropriation for Fiscl Year 1976.

*Economic Research Center, Department of Commerce, Gov/Guam, Statistical Abstract, Vol. 4 (1973).

Loans from this fund are made at 1% above the interest rate on United States treasury bonds. Interest rates thus range from 6% to 10%. Borrowers are given up to 25 years to pay the loans, with up to one year's deferment of the first payment.

GEDA, in conjunction with the Guam Department of Agriculture, also administers a revolving Agricultural Development Fund which was originally authorized a $100,000 appropriation in 1967. To date $241,000 has been loaned at a rate of 3% interest to farmers, and two additional loans amounting to $3,050 are pending.

In December, 1973, the Guam Legislature enacted Public Law 12-69, the "Guam Economic Development Authority Hospital Facilities Finance Act", authorizing GEDA to issue revenue bonds or notes for the financing or refinancing of hospital facilities. Since that date, arrangements have been made for GEDA to float first mortgage gross revenue bonds in the amount of $15.3 million to refinance the cost of construction of the Medical Center of the Marianas. The law permits GEDA to float bonds for any hospital facilities, public or private. It is anticipated that the bonds for the Medical Center of the Marianas will be floated by May or June, 1975.

Financial Resources of the Public Sector

Revenue Bonds: To date two government agencies, the Guam Power Authority and the University of Guam have successfully floated revenue bonds.

In 1968, the University of Guam raised revenue bonds in the amount of $2.1 million for the construction of a dormitory and Student Building. The University has until the year 2008 to pay off the bond debt.

In 1968 the Guam Power Authority (GPA) was authorized by Public Law 9-160 to issue revenue bonds. In 1969 GPA was able to raise $11 million in revenue bonds, the debt to be paid off by 1996.

In 1972 the GPA Board authorized the sale of $52 million revenue bonds. Revenue bonds amounting to $25 million, rated "BB" by Standard & Poor, were sold on December, 1972. The $25 million revenue bonds are to be paid off by the year 2007.

GPA intends to sell the balance of $27 million on May 22, 1975. This series of bonds has been given an "A" rating by Moodys. It will also finance the $17.5 million Bond Anticipation Notes which had to be raised in 1974 to continue GPA's construction program.

GPA's projected capital requirements from 1975 through 1980 are $122,905,000.* This capital is to be raised through the revenue of the agency and the sale of additional revenue bonds.

*Due to a fall in consumption rates from a growth of between 7½% and 9% per year down to 6% per year, the $122.9 million has been reduced to 80.9 million. (Source-GPA, March, 1975).

Other agencies within the Government of Guam have the potential for raising revenue bonds. They include the Guam Telephone Authority (GTA), the Commercial Port, the Guam Air Terminal and the Public Utility Agency of Guam (PUAG).

The Guam Telephone Authority (GTA) was established by Public Law 12-44 on April 1, 1974, and was authorized to issue bonds. The income GTA presently derives from its operations, however, is not sufficient to repay the cost of revenue bonds. The Commercial Port and the Guam Air Terminal both derive modest profits from their operations. However, neither agency has the authority to float bonds at the present time. The PUAG also derives revenues from the sale of water and from sewer service fees. But further legislation is needed to place PUAG in a financial and autonomous position so that it can eventually raise capital through revenue bonds.

General Obligation Bonds: The Government of Guam's ability to sell general obligation bonds is limited both by federal law and by its own present financial status.

Section 11 of the Organic Act of Guam, the Government of Guam's "Charter", provides that the Government of Guam may issue bonds and other obligations - "Provided, however, that no public indebtedness of Guam shall be authorized or allowed in excess of 10% of the aggregate tax valuation of the property in Guam". According to the most recent computation of 10% of the assessment of the aggregate tax value of property on Guam, this would mean that the Government of Guam could not issue general obligation bonds in excess of $33.8 million*. In view of the Government's need for capital in the amount of $700 million over the next five years, this provision of the Organic Act is extremely limiting.

Dr. Ralph E. Badger, of Stanford Research Consultants, Inc., conducted an analysis of the Government of Guam's fiscal status in the fall of 1970**. In his report, Dr. Badger concluded that if his predictions concerning Guam's annual surplus revenue over operating costs were correct, between the years 1972 and 1977 Guam should be able to raise $61.6 million for capital improvement projects. Thereafter the Government of Guam's fiscal status should be such that it should be able to raise additional funds by issuing general obligation bonds. The point of his study was that the Government of Guam would need to establish a stable consistent fiscal record showing annual surpluses over operating expenditures, before it could hope to issue general obligation bonds at a favorable interest rate.

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*Report covering the Economic Growth of the Territory of Guam and Capital Requirements Necessary to Support Growth for Period. 1971-1977.

**Source - Revenue and Taxation Department.

Unfortunately due to the current recession, the Government of Guam has not been able to maintain an annual surplus of revenues over operating expenditures, and Fiscal Years 1975 and 1976 will more likely present deficits rather than surpluses if current predictions are correct. Due to high inflation rates and the recession of the economy, revenue collections during the latter part of FY 1975 are likely to fall short of revenue estimates and expenditures. Gross receipts and income tax revenues for FY 1976--which are to be computed at a reduced tax rate *--are expected to decline from FY 1975. Thus, while operating costs will remain high, revenues for FY 1976 are expected to decline. This setback in the growth of Guam's economy and the decline in government revenues temporarily delays Guam's ability to float general obligation bonds at favorable interest rates.

Following Typhoon Karen in November, 1962, the U.S. Congress enacted Public Law 88-170, the Guam Rehabilitation Act. In March, 1968, this Act was amended to bring rehabilitation funding up to a total of $75 million. The funds were appropriated to Guam in the form of loans and grants. Of the total $75 million, $4.9 million constituted loans repayable at interest rates based on the average yield on outstanding marketable obligations of the United States Treasury, and $30.1 million were grants. Over a period of 30 years Guam will thus repay the United States Treasury a sum in excess of $100 million for the rehabilitation program. At the present time Guam is making annual payments in excess of $2.0 million from Section 30 funds (federal income tax funds returned to Guam). Fortunately, Section 5 of the Rehabilitation Act provides that "No portion of the sums to be repaid by the Government of Guam to the Treasury, shall be considered to be public indebtedness of Guam within the meaning of Section 11 of the Organic Act of Guam..."

As of February, 1975, $11.9 million of the debt has been repaid, of which $2.6 million went to the principal and $9.3 to interest.

Future Outlook: Apart from the decrease in military activities on Guam and in the Western Pacific--which has a direct impact on employment and income tax revenues--and apart from the temporary decline in the construction industry, Guam's young tourist industry appears to be unaffected by the world's present economic problems, and revenues from tourism continue to replenish Guam's treasury. As a finance and communications center, Guam's prospects continue to be good,and inroads have recently been made into the field of agriculture which, for the first time in many years, is characterized by increasing production and increasing employment.**

*As per the amended U.S. tax laws - Public Law 94-120.

**H-2 alien laborers are now permitted to enter Guam as farmers.

Additionally, prospects for federal grants and loans amounting to $56 million for construction projects appear optimistic. Should the proposed capital improvements program be approved by the U.S. Congress on terms similar to the 1963 Rehabilitation Program, Guam would have a generous source of funds, since the $56 million would be considered "local" funds.

Whether or not Guam receives $56 million for capital improvements, Government of Guam revenues are expected to continue to increase significantly each year after the current recession. Guam's present economic woes are considered to represent only a temporary pause in the growth of the economy. Guam's potentials in the areas of agriculture, light manufacturing, assembly and processing, transshipments, fishing, finance, tourism and communications have been only lightly tapped, and it is evident that the island has a long way to go before it realizes its full economic potential.

COMMUNITY FACILITIES

History:

Until August, 1950, when Guam was granted civil government under the terms of an Organic Act, Guam was governed by the U.S. Navy, and all public utilities and facilities were administered and owned by the Naval Government.

Section 28 (a) of the Organic Act, however, provided that: "The title to all property, real and personal, owned by the United States and employed by the Naval Government of Guam in the administration of civil affairs of the inhabitants of Guam, including automotive and other equipment, tools and machinery, water and sewerage facilities, bus lines and other utilities, hospitals, schools and other buildings, shall be transferred to the government of Guam within ninety days after the date of enactment of this Act."

The U.S. Congress clearly intended that whatever public facilities and utilities were needed for the administration of the civil affairs of the inhabitants of Guam should be inherited by the new civil government for the benefit of the people of Guam. The bulk of the properties listed in Section 28(a) of the Organic Act, however, were never transferred to the civil government.

While the Organic Act was being drafted during the years 1948 through 1950, the Naval Government initiated a series of 43 separate condemnation proceedings in the Superior Court of Guam. The properties condemned included almost the totality of Guam's water facilities such as the Fena River Reservoir, Tumon Maui Wells, Mt. Santa Rosa Reservoir, Tarague Natural Wells, Agana Springs, pumping stations, water lines and easements. Also condemned were the Tumon Bay Recreation Area Utility Lines, the Agana Diesel Electric Generating Plants, and the Sub-Transmission System

Piti Steam Plant.

Following the condemnation proceedings, on July 31, 1950, just one day prior to the enactment of the Organic Act of Guam, when the facilities were to be turned over by the Navy to the civil government of Guam, a Quitclaim Deed was signed by the Acting Governor of Guam, Carlton Skinner, (who still represented the Navy), transferring all the condemned properties, plus all titles, rights, interests or claims to the highway, sewer, water, power and telephone utility systems to the United States of America "for its own uses".

Thus the next day, August 1, 1950, when the Organic Act of Guam became law, and when the vitally needed facilities were to be turned over to the civil Government of Guam, the Navy "discovered" that it had nothing left under its jurisdiction or ownership to transfer except a few telephone poles and subsidiary waterpipes. All the essential utilities had been temporarily transferred from its jurisdiction for the critical period of ninety days.

Instead of the new Government of Guam commencing its public business with a reasonable inventory of resources and facilities, as intended by the U.S. Congress, it started its career stripped of the most basic facilities and utilities required to maintain the health and welfare of its citizens.

Upon the expiration of the ninety-day period provided by Section 28(a) of the Organic Act, on October 30, 1950, President Harry S. Truman issued an Executive Order returning all the property included in the Quitclaim Deed to the jurisdiction of the Secretary of the Navy, who was ordered to divide the property among the Army, the Air Force, the Coast Guard and the Navy, according to their needs.

As a result of this ninety-day transfer, the young Government of Guam for the next two decades was forced to purchase, beg or lease facilities and equipment from the Navy, until it was able to raise sufficient revenues to purchase its own.

During the years 1950 to 1962, Guam's economy was dependent upon military reconstruction projects since the island was closed to commerce with the outside world by U.S. Naval Security Regulations. Government of Guam revenues were therefore extremely limited and unable to cope with the cost of constructing an island-wide infrastructure. It was not until the U.S. Congress enacted the Guam Rehabilitation Act in November 1963 that Guam received enough capital to begin the task of developing power, water, sewer and highway systems for the benefit of the civilian community. The Rehabilitation Act and its subsequent amendment provided $75 million for the construction of public facilities and utilities. In 1973, however, the rehabilitation funds were exhausted leaving the water, sewer, highway and power systems only partially completed. Thus Guam is still in need of additional funds to extend the water, sewer, telephone, power and highway systems into the southern sector of the island.

TABLE NO. XIII

PUBLIC UTILITY AGENCY OF GUAM

SUMMARY OF WATER CONSUMPTION

	YEAR	BILLION GALLONS/YR.	MILLION GALLONS/DAY
	1965	1.104	3.025
	1966	1.614	4.422
	1967	1.767	4.841
	1968	2.068	5.666
	1969	2.446	6.701
	1970	2.843	7.789
	1971	3.350	9.178
	1972	4.117	11.279
	*1973	4.875	13.357
	1974	5.698	15.611
(Projected)	1975	6.488	17.778

*Projected 1973 4.562 Billion Gallons/yr. = 12.499 Million Gallons/day

Source: Halili, PUAG, March, 1975 - Camba

Water

Rainfall is, for all practical purposes, the only source of water for Guam. The water from this source comes to human usage in two distinct ways depending on geographic location: water lenses in the north, and river and stream flow in the south.

The topography of the north is made up of a flat limestone plateau. Rainfall seeps through the limestone into a series of natural interconnecting caverns forming two water lenses.

The topography of the southern end of the island is entirely different to that of the north. The south is mountainous, composed of non-porous rock, and is therefore interlaced with streams and rivers. During the wet season water supplies come from the live rivers. During the dry season the rivers dry up requiring water to be trucked to the inhabitants of the area. During the first five months of 1973, for example, the Government of Guam maintained water transportation service to the southern end of the island on a 24-hour per day basis, seven days a week for three months, and due to the long drought this year is again delivering water to Merizo daily at a cost of $2,000 per day.

Historic climate indicators show that six months per year are dry and during six months monsoon rains fall. Current civilian and military water requirements make it necessary to collect rainfall in a planned fashion so that 12-month demands can be met. As the population continues to grow, water supply becomes increasingly urgent. In order to sustain the present civilian growth being experienced, a reliable collection, storage and ground pumping system must be developed.

Water Resource Potentials:

The dependable yield of islandwide water resources has been estimated by the Government of Guam as 17 mgd. for surface sources, and 42 mgd. for ground sources. Others have estimated that up to 50 mgd. could be safely recovered from the northern water lenses. On the other hand, there is a possibility that the development now occurring on the northern plateau may reach such a level that the capacity of the water lenses will be reduced.

Water Facilities:

The Government of Guam currently operates 60 wells located on the northern limestone plateau drawing water from the two lenses. During the rainy season, the village of Merizo obtains its water supply from an old dam built on the Geus River.

The Navy obtains the bulk of its water supply from the Fena Reservoir in the southern part of the island, which it constructed in 1950. It also operates four deep wells.

The Air Force produces water from eight deep wells in the northern sector of Guam, and also draws water from the Tumon Shaft--a mani-type* cavern.

Water Capacity:

The total water capacity currently available to the civilian sector is 15 mgd., and the Government of Guam has no reserve capacity. Because rainfall in 1973 was extremely light, the Government of Guam had to purchase the maximum water available from the Navy and Air Force systems in the amount of 3.25 mgd., to meet civilian requirements in the southern sector of Guam.

The total water capacity of the Navy's water system is 12 mgd. Usage by the Navy and civilians is approximately 82% of capacity.

The total capacity of the Air Force water system is 4.5 mgd., while usage is approximately 78% of available resource. Thus total island water capacity is currently 31.5 mgd.

Water Consumption:

Present water consumption by the civilian population approximates between 14 and 15 million gallons per day (mgd).

Consumption by the Navy, including civilian purchases, exceeds 9 mgd, while consumption by the Air Force, including civilian requirements, is currently 3.5 mgd. Thus, total island consumption ranges between 26 mgd and 29 mgd.

It can be seen from Table No. XIII that water consumption on Guam has increased dramatically during the past ten years, and is expected to continue to increase, although at a more moderate rate.

Future Needs:

Between 1975 and 1980, the Government of Guam must supply an additional 2 mgd per year, or an increase of 12 mgd in five years. With civilian consumption now at the 14-15 mgd level, this represents an increase of 85% in the Government of Guam's overall capacity.

Master Plan for Water Facilities Development:

The Government of Guam has been implementing comprehensive master plans for the development of an integrated water system since 1965. Guam's initial water development plans were based upon a Water Supply for the Government of Guam, 1964 by the Kennedy Engineers. This plan was followed by an Economic Study of the Operation of the Water Division PUAG Relative to Proposed Capital Improvement Programs, FY 67 to FY 72, by Austin, Smith & Associates, Inc. This was succeeded by a Report Covering the Surface Water Survey of the Island of Guam by the same company, and their 1970 study on Conservation Requirements for the Preservation of Guam Water Resources. This was again succeeded by Austin, Smith's Master Plan Report, Guam Water System Improvements, FY 72 to FY 82. The most recent study

*Hydrologists' terminology.

on Guam's water resource was authored by John F. Mink in November 1974. This last study was entitled Ground Water Resources of Guam, Occurrence and Development.

On the basis of the above reports, for the purpose of constructing additional water facilities, the island has been divided into four major sections: northern, central, western and southern. The basic object of the government's plans is to develop new sources of supply, provide greatly increased storage facilities, increase transmission and distribution facilities, and provide treatment when required.

Proposed Water Facilities:

The Government of Guam's five-year plan calls, among other things, for the construction of 20 additional wells in the northern and central sectors of the island; the construction of two dams in the southern sector of the island -- one dam on the Ugam River with a 10 mgd capacity and a dam on the Umatac La Sa Fua River which would produce 1.8 mgd -- transmission and distribution lines, and reservoirs which would increase Guam's storage capacity from ten to fifteen million gallons.

Pending the construction of a dam on the Ugam River, however, because of the critical water shortages which occur during the dry season, and the pollution which occurs during heavy rains, it may be necessary to construct interim water supply facilities pumping northern well water from the village of Inarajan to Merizo.

The development of the 20 wells in the north will take pressure off the Navy and Air Force to supply civilian water and will give both military installations additional capacity to meet their own growth. The Ugam and La Sa Fua dams in the south will supply the southern villages and aid in the orderly development of the area. The construction of reservoirs will protect the inhabitants of southern Guam from water shortages caused during periods of drought.

Construction Costs:

The construction of 20 wells in the northern and central sectors of the island is estimated to cost between $660,000 and $700,000. The cost of the Ugam River dam is estimated at $4.4 million; the cost of the Talofofo dam would be approximately $6.0 million; the La Sa Fua dam would cost $3.0 million; and the Inarajan dam would cost about $2.5 million. The interim extension of the water pipelines from Inarajan to Merizo and the reconstruction of the road between the two villages would cost around $4.0 million.

The five year master plan calls for a total expenditure in excess of $20.0 million for the wells, dams, reservoirs, transmission and distribution lines.

Since Guam's Rehabilitation Funds are already exhausted, the only known source of funding for these water facilities is the Government of Guam General Fund. Due to the limitations of the General Fund, however, no appropriation has recently been made for water facilities by the Guam Legislature. Guam will thus be forced to seek funding for her water facilities from other sources.

Sewer Facilities:

The health and welfare of every person on Guam is presently being endangered by the lack of adequate sewage disposal facilities. Sewage from over 75% of the residents on Guam flows either directly into the ocean totally untreated, or seeps into the ground from septic tanks, cesspools and outhouses.

Immediate implementation of Guam's wastewater master plan is required to protect potable water sources; to eliminate the destruction of protective coral reefs surrounding the island, and to insure the health and welfare of all residents of Guam.

As housing develops, as commerce and industry grows, and the military continue their operations on Guam, the need for an integrated civilian-military wastewater system became increasingly evident. Thus, the present wastewater master plan for Guam (A Plan for an Integrated Wastewater System for Guam) incorporates the Navy and Air Force sewage requirements within their respective designated geographical districts.

Problems: Northern Guam:

In its attempt to preserve the water quality of the Territory, Guam faces problems in the development of the northern plateau. On the one hand, the terrain in the north is ideal for massive development. On the other hand, the water lenses under the limestone plateau are the primary source of drinking water for the civilian community. Nevertheless, housing and commercial developments on this plateau continue to expand as the population increases and the economy grows.

Specifically, since World War II, many families have built permanent homes in Dededo, Yigo, Barrigada and Mangilao municipalities. These same areas have been identified as important conservation areas for the protection of the lenses and the development of wells. At the same time, for many of these people the only means of human waste disposal are latrines or cesspools. For others the construction of septic tank - leaching-field systems has had to suffice, and even with these systems a high potential for contamination of groundwaters exists if the number of these systems is such that inorganic substances build up concentrations in the water lenses below.

Solutions to this problem point to the need for planning controls, immediate installation of sewer facilities to treat wastewater and carry it out into the ocean, and the appropriation of capital to construct the sewer facilities.

Southern Guam:

Potable water in the south is endangered by the almost universal use of septic tanks, cesspools and outhouses. Since the only supply of water is runoff of monsoon rains into the rivers and streams,

open sewage disposal methods cause these wastes to filter into the potable water supply. The following data are average fecal coliform counts taken at four major southern river mouths biweekly for the period of October 1, 1973 to October 1, 1974:

Talofofo River Mouth	1745 FC/100ml
Inarajan River Mouth	1008 FC/100ml
Geus River Mouth (Merizo)	4998 FC/100ml
Umatac River Mouth	4670 FC/100ml

The implications are clear: the southern reef flats around these river mouths are highly polluted with human and animal wastes.

The public health problems associated with inadequate collection, treatment and sewage discharge have become evident on Guam. Recent outbreaks of hepatatis, cholera and typhoid fever, and the potential for many other water-borne diseases have aroused public concern.

The Environment:

The effect upon the marine environment of these high fecal coliform counts is poorly understood. Considerable mixing and dilution occurs as the waste moves downstream and enters the bays, ultimately to be partially dispersed on the reef and partially in deeper ocean water. There is evidence that associated chemical materials such as phosphates and nitrates disrupt the natural food chain and the ecological balance of reef communities.

In addition to this pollution of the river mouths in the south, there are ten raw-sewage discharges and two primary-treated outfalls around the shores of Guam. The following offers some indication of the volume of sewage currently being released into Guam's marine environment:

Agana Outfall (raw sewage)	-	more than 8 million gallons daily;
Agat Sewage Treatment Plant (primary treatment)	-	650,000 gallons daily
Pago Sewage Treatment Plant (package treatment)	-	80,000 gallons daily
Commercial Port Treatment Plant (package treatment)	-	20,000 gallons daily

Direct sewage discharges and subsequent damage within a bay supporting tropical corals and associated marine organisms has been documented in the case of Kaneohe Bay, Hawaii,* where the coral reef has been extensively damaged.

*Atlas of Kaneohe Bay (Hawaii) by Smith, Chave & Kam, et.al.

Sewer System Master Plan:

Guam's sewage master plan divides the island's requirements into four districts. The districts are based on population distribution--civilian and military--topography, and location of discharge points.

The northern and central districts, which include Agana and Dededo, are the two fastest growing districts in Guam. The two districts depend entirely on the water lenses for potable water, and, as stated above, residential, commercial and industrial growth in these districts poses immediate danger to this water source. Only 50% of the residences in these districts are currently connected to the sewer relief system which deposits these sewage wastes in the ocean, totally untreated, in the general vicinity of Guam's resort beaches.

Facilities - Northern and Central:

The Northern-Central construction project consists of installing transmission and distribution lines, pumping stations and other general plant improvements. Once this project is completed, all residences and business establishments in the area will be required by law to connect to the new system. Completion of the project will aid in protecting the water lenses, but sewage from this project will still be pumped into the surrounding ocean in an untreated state. A sewage treatment plant at Agana is planned which will serve these two districts, but, as yet, the source of funding is undetermined.

Costs:

The estimated cost for this northern-central project is $14.037 million. The financing and installation of the facilities is on a joint basis between the civilian and military communities. Financing has been made available through $1.08 million Navy funds, $3.027 million Air Force funds, $.051 million FAA funds, $7.166 million from the Environmental Protection Agency grant-in-aid program, and $2.713 million from Government of Guam funds. The latter, however, faces difficulties in raising $1.132 million of its $2.713 million contribution.

Facilities - Western and Southern Districts:

The island of Guam has only one sewer treatment plant at present, and that is located in the village of Agat in the Western district. This treatment plant serves approximately 8,000 civilians, under 8% of the island's total population. Some villages, and the Navy installations in the district are connected to a sewer relief system with direct outflow of raw sewage into the ocean. At the present time, the Navy is constructing a treatment plant which will be integrated

with the Agat treatment plant and which will incorporate all the surrounding villages within the system.

Because of the difficult topography which features mountains, steep valleys and rugged terrain, the Southern district will require at least three separate treatment plants. The villages of Inarajan and Talofofo will each require separate systems and treatment plants. Umatac and Merizo can be integrated into one system with one treatment plant.

Financing of Sewer Facilities:

Completed sewage capital improvements have been financed from Guam's Rehabilitation loans and local funds. To date approximately $10.6 million has been invested in new transmission and collection facilities, and in the upgrading of antiquated facilities in the central and western districts. Another $1.15 million has been expended in the Agat sub-treatment plant, $1.53 million into northern district improvements, and $200,000 for the sewer master plan. A total of $13.48 million thus far has been expended or committed to sewage capital improvements.

For the next five fiscal years, 1975-1979, projected financial requirements to construct the sewer system are estimated at no less than $40.5 million. Guam is eligible to receive $12.5 million ($2.5 million per year) from EPA program funds but would have to raise the 25% matching contribution, which she has great difficulty at the present time in doing.

match problems

Of the $40.5 million required to implement the sewer master plan, the northern and central districts will require $20.9 million and the western and southern districts approximately $19.6 million. Of the total $40.5 million, the Government of Guam would have to finance approximately $13 million, which constitutes an intolerable strain upon local resources.

Solid Waste Disposal Facilities:

People have been generating and disposing of solid waste on Guam since the first human habitation. Until recently, however, solid waste disposal was not much of a problem. There were few or no manufactured goods; even imported foods and wares came in reusable bulk containers, or ones that were easily degraded by heat and humidity. Population was small and scattered. Personal income was limited to expenditures for basic items such as food and clothing, with little available for luxury goods.

No figures exist on the amount of solid waste generated on Guam during the early part of the 20th Century, perhaps because so little waste was actually generated and much more space was available for its disposal. In fact, the ocean and the land both served as the island's garbage dump.

In the ocean, the wastes either settled to the bottom, were carried away by currents or eaten by sharks; on land, vegetation rapidly covered the unslightly dumps creating a feeling of out of sight, out of mind.

Today these simple solutions are no longer possible. Conditions have changed considerably. The population has increased ten times over since 1900; American economic policy is predicated on obsolescence and high consumption; goods are over-packaged in decay-proof wrappings designed to be discarded once the contents are consumed. Moreover, leisure time and expendable income have grown.

The volume of solid waste produced by the civilian community as of March 1975 was estimated at 125 tons per day--45,625 tons per year. According to the Guam Department of Public Works, solid waste volume is increasing at the rate of 8% per year in the civilian sector.

Civilian refuse is currently dumped at the Ordot Landfill which is expected to be filled within eight to ten years. When the Ordot site has been completely filled, a new dump will be opened up on a 60 acre site off Route No. 17 adjacent to the Windward Hills Golf Course in the southern sector of the island. Alternatively, at that time it is feasible that the plasma torch method of converting solid waste to flagstone and gas could be utilized to dispose of solid waste and reduce it to 5% of its original bulk.

There are currently three other landfills on Guam, two of them operated by the Navy at the Naval Station and Naval Air Station (NAS), and one operated by the Air Force at Andersen Air Force Base (AAFB). Approximately 66,500 cubic yards of solid waste per month are currently produced by the Navy and Air Force installations.

In all of the landfill operations waste is spread on the surface of the site, compacted to a depth of eight to ten feet, and then covered with dirt. All of the sites have potential water pollution problems: NAS and AAFB sites because they are situated in limestone areas; the Ordot site because of its inadequate cover and resultant leachate which enters a branch of the Lonfit River; and the NAS site because the landfilling is being done in a swamp area.

In 1973, AAFB finished construction of a solid waste transfer station to bulk-haul its waste south and to enable the Air Force to close their landfill. But equipment delays and the lack of a receiving point have stopped implementation of the plan. Both the Air Force and Navy Commands have expressed interest in utilizing civilian landfills for disposal. However, the Ordot Landfill will be

exhausted rapidly if it were to receive military wastes, but the military commands on Guam are now particularly interested in exploring with the Government of Guam the feasability of the plasma torch method of eliminating solid waste. The reduction of Guam's solid waste to only 5% of its original bulk would solve the many problems of pollution and land waste which would otherwise confront the island.

Education Facilities:

Public Elementary: As of January, 1975, Guam had 28 elementary schools containing a total of 714 permanent classrooms and 84 temporary classrooms*. The schools are located either within, or in close proximity to, the island's villages.

Three additional elementary schools are to be located at Asan, Dededo and Talofofo. The schools were originally scheduled for completion by 1977, however, only $1.2 million is currently available for construction from remaining Rehabilitation Act funds. No source of funding has yet been identified to raise the additional $5.3 million needed, and it is not anticipated that funds from the General Fund will be available during Fiscal Year 1976.

As of January, 1975, 17,273 students were enrolled in the public elementary school system, and enrollment is expected to increase at the rate of 3.2% next school year, bringing the total number of students up to 17,827 by 1976.

Public Secondary: At present there are seven secondary schools catering to junior and senior high school students. These contain a total of 336 classrooms and 22 temporary classrooms. A Vocational-Technical High School in addition has 35 permanent and six temporary classrooms.

A new senior high school is planned for construction to serve the Agat-Santa Rita area. The school was originally scheduled for completion by 1977 and will contain 45 classrooms. The estimated cost of the school is $7.5 million, of which $3.1 million remains available from the Rehabilitation Act funds. The funding of the remaining $4.4 million, however, is as yet undetermined.

Enrollment at the secondary level as of January, 1975, was 11,390 students, and enrollment for the next school year is expected to increase by 6.7% to 12,150 students.

Private Schools: There are 13 private schools catering to students at all levels of education, of which ten are catholic schools.

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*See Table No. XIII-A.

Enrollment in catholic schools as of September, 1974 was approximately 4,500 students. Enrollment at the largest private school, St. John's Episcopal Prep School, was 410. Total enrollment in all private schools is estimated at around 5,200 bringing the total school population up to around 34,417 students.

University of Guam: The University of Guam has a complex of 18 buildings on its campus representing a total investment of $10 million. The buildings include the following facilities: Science Building; Dental Annex; Health-Science Building; Library; Student Union Building; Fine Arts Building; Administration Building; a Marine Laboratory; Buildings "A" to "D" consisting primarily of classrooms; three dormitories; a Multi Purpose Building; Maintenance Shop and a Maintenance Building (See Table No. XIII-B).

Student enrollment at the University for the 1975 Spring semester totalled 3,169, including part time students.

Scheduled for construction in the near future are an Education Building estimated to cost $4 million; a Student Center addition ($1.3 million); a Physical Education Building ($2.2 million); a new Library and Resource Center ($10.1 million) and a College of Business and Public Administration and a Community Career College which would cost approximately $4 million. At the present time the sources of funding for the University facilities are undetermined. The General Fund would not be in a position to finance the facilities for the next two years.

DATE: March 14, 1975

TABLE XIII-A

NAME	LOCATION	NO. OF CLRSM		LOT * SIZE	TOTAL SQ.FT.	YEAR/COST	ADDITION/COST
		Perm	Temp				
ADELUP ELEM	Adelup	24	2	13	24,844	53/439,500	
AGANA HEIGHTS	Agana Heights	19	5	9	31,582	58/325,347	74/237,572
AGAT ELEM	Agat	19	5	15	44,217	50/148,729	71/594,343
ANDERSEN ELEM	Andersen	44	0	17	71,082	58/1,252,386	
BRODIE MEMORIAL	Tumon	13	0	10.5	30,952	66-67/338,200	71/250,000.
CARBULLIDO	Barrigada	22	0	8.5	40,275	738,192	
HARMON LOOP	Harmon	29	2	12	47,160	71/1,408,532	
FINEGAYAN ELEM	Finegayan	39	2	15	48,820	72/1,732,511	
INARAJAN ELEM	Inarajan	37	0	41	34,160	54,58, 67/556,177	
F.B. L.GUERRERO	Yigo	30	0	21	63,496	74/2,417,437	
P.C. LUJAN ELEM	Radio Barr.	36	0	15	43,822	62/451,892	71/403,678.
L.B. JOHNSON	Tamuning	20	0	3	24,891	74/904,000	
MERIZO ELEM	Merizo	18	2	10.6	34,496	66/364,668.	67/35,000 71/249,905.
NEW PITI	Piti	23	7	8	33,283	68/559,017.	
OLD PITI	Piti	12	4	3.6	10,752	51/154,624.	
ORDOT-CHALAN PAGO	Ordot	21	5	12	14,600	65/575,549	74/237,572.
PRICE	Mangilao	21	12	8	27,688	58/256,170.	70/416,268.
F.Q. SANCHEZ	Umatac	6	2	2	9,900	57/190,000.	
SAN MIGUEL	Toto	22	9	15	27,904	71/715,667.	
C.L. TAITANO	Sinajana	29	3	18	43,345	58/469,280.	71/262,618.
TALOFOFO	Talofofo	15	3	9.2	27,158	65/408,347	67/65,000.
TAMUNING	Tamuning	50	3	15	57,171	58/403,797.	74/904,000. 67/190,000.
J.P. TORRES	Santa Rita	13	3	9.2	19,680	58/180,500.	
TRUMAN	Santa Rita	19	9	17.8	30,677	66/489,065. 74/237,572.	74/237,572.
MARIA ULLOA	Dededo	39	1	10.3	56,636	65/542,073. 67/314,000.	70/186,930. 71/263,618.
WETTENGEL	Dededo	33	0	15	49,089	68/1,695,800.	
YONA	Yona	39	0	15	48,820	73/1,679,052.	
ASAN Proposed	Asan	34		23		77/2,674,149	
Y-PAOPAO Proposed	Dededo	40		25		77/2,674,149	
TALOFOFO (New) Proposed	Talofofo	40		25		77/2,674,149	
YIGO ELEM	Yigo	22	5	15	40,435	68/1,291,000.	
* LOT SIZE IN ACRES							

DATE: March 14, 1975

NAME	LOCATION	NO. OF CLRS!! Perm	Temp	LOT * SIZE	TOTAL SQ.FT.	YEAR/COST	ADDITION/COST
AGAT JR.	Agat	37	4	15	57,804	60/592,606.	
DEDEDO JR.	Dededo	62	13	24	87,469	66/1,517,481.	68/349,000.
G.W. SR. HIGH	Mangilao	74	0	37.9	138,521	66/3,209,702	67/193,000. **68/83,000.
INARAJAN JR.	Inarajan	20	0	25	52,700	73/2,436,964	
J.F. KENNEDY	Tumon	69	0	42.8	127,592	59/1,610,064.	66/182,000, 68/225,000 71,245,524.
AGUEDA JOHNSTON	Ordot	44	5	20.2	37,831	66/1,517,481.	71/375,200.
SIMON SANCHEZ	Yigo	30	0	30		74/2,822,274.40	
VOC-TECH	Mangilao	35	6	19.4	28,392	66/730,827.	67/101,000. 68/133,000.
Proposed AGAT-SANTA RITA SR.	Santa Rita	45		30		77/2,750,000.***	

* Lot size in acres

** Athletic field

*** Available money approx. 7,500,000. needed to build total facility.

TABLE NO. XIII-B

BUILDING INVENTORY

Date of Inventory – March 12, 1975

Bldg. No.	Building Name	Type of Construction	Year Comp.	No. of Floors	Gross Sq. Ft.	Net Assignable Sq. Ft.	Development Cost
1.	Science	Reinforced Concrete	1968	2.2	30,080	15,223	2,109,507
2.	Dental Annex	"	1971	1	7,454	3,810	550,000
3.	Health/Science	"	1970	2	17,847	8,386	641,000
4.	Library	"	1968	1	21,054	16,649	313,763
5.	Student Union	"	1970	1	26,610	17,330	1,407,285
6.	Fine Arts	"	1968	2	20,428	11,083	630,957
7.	Administration (Old Library)	"	1960	1	5,760	4,261	170,400
	Extension Administration	"	1975	1	2,700	2,280	75,000
8.	Marine Lab.	"	1970	1	10,328	8,632	340,539
	" Addition	"	1975	2nd floor	7,035	3,852	249,000
9.	Bldg A	"	1960	2	22,300	14,927	205,914

TABLE NO. XIII-B

BUILDING INVENTORY

Continued

Date of Inventory — March 12, 1975

Bldg. No.	Building Name	Type of Construction	Year Comp.	No. of Floors	Gross Sq. Ft.	Net Assignable Sq. Ft.	Development Cost
10.	Bldg B	Reinforced Concrete	1963	2	22,300	16,301	205,914
11.	Bldg C	Wood Frame	1972	1	2,572	2,320	19,320
12.	Bldg D	Wood Frame	1973	1	3,924	3,724	26,571
13.	Dormitory I	Reinforced Concrete	1970	2	20,013	12,189	591,554
14.	Dormitory II	"	1970	2	20,013	12,396	591,554
15.	Dormitory III	"	1970	2	20,013	12,396	591,554
16.	Multi-Purpose (Old Student Center)	Steel Frame Wood Skin	1960	1	11,181	8,890	77,616
17.	Maintenance Shop	Wood Frame	1963	1	3,814	2,532	14,400
18.	Maintenance Bldg.	Steel Frame Steel Skin	1975	1	8,000	7,245	150,000
	TOTALS				283,426	184,426	8,961,848

Industrial Parks:

The Guam Economic Development Authority (GEDA) has sponsored the development of three industrial parks on Guam. One is located on Cabras Island in close proximity to the Commercial Port, a second is located in Tamuning, a fast-growing suburb adjacent to Agana, and the third park is located at Harmon, north of Tamuning.

The industrial park at Cabras consists of 32.12 acres currently occupied by a cold storage facility, a small ship repair facility, Guam Oil Refinery Company (GORCO), Esso and Mobil Petroleum Companies, Kaiser Cement Plant and Hunt & Behrens Feed Mill.

The Tamuning Park* consists of 28 acres occupied by the International Trade Center (offices, shops, hotel and convention facilities), the Catholic Medical Center (a clinic), a power substation, a plastics factory, a clothes manufacturer, a glass and metal products factory, warehouses and a printing company.

The Harmon industrial park consists of 16 acres occupied by the Central Pacific Iron Works (producing ornamental iron products), three warehouses, a dry cleaners, a garment factory, a watch assembly plant and other small light manufacturing industries.

According to officials at GEDA the parks are all fully occupied, with the exception of 15 acres at the Tamuning Industrial Park.

*The E.T. Calvo Memorial Park.

HEALTH FACILITIES

Public:

The Guam Memorial Hospital

The only public hospital on the island is the Guam Memorial Hospital located in Tamuning which has a total of 242 beds (33 of which are used for extended care and all beds are considered non-conforming). This hospital was built in stages which has resulted in some serious deficiencies. The tuberculosis facility was built in 1955. In the same year, the nursing school located a short distance away was converted to a general hospital. There was a lack of adjunct services that made it necessary to add yet another building in 1957. The lack of adequate planning has resulted in a facility which is inefficient in many ways. Inadequate and poorly located services add to the administrative problems of providing good care.

Public Health Centers

The primary health center for the island is located in the Central Diagnostic and Treatment Facility in Mangilao. This facility encompasses over 72,000 square feet. A smaller Diagnostic and Treatment Center is located in Inarajan village on the southern end of the island. It opened its doors for service on July 1, 1971. There are also 13 small auxiliary centers located throughout the island.

Private Clinics

Although most health services are still provided by the Government of Guam, outpatients are encouraged to partronize Guam's numerous private clinics. As of March 1975, there were ten private clinics serving the people of Guam, the majority of which are located in or near Tamuning in close proximity to the Guam Memorial Hospital. The clinics are staffed by an estimated 55 general practitioners and specialists covering the full range of medical and dental care.

Proposed Facilities:

Because of the faulty design of the Guam Memorial Hospital and its generally inadequate conditions (in 1968 the U.S. Department of Health, Education and Welfare described the facility as functionally obsolete, and in December of 1974 the hospital lost its accredited status due in large part to its inadequate facilities), plans have been underway for the construction of a new hospital by the Government of Guam. In 1974 a Hospital Fund was established, and ground was broken in Mangilao, the chosen site of the new hospital. The proposed hospital called for 250 beds and its completion date was originally set at 1976. However, the construction of the Northern Area Health Center in Dededo has been held in abeyance since the additional federal funds needed have been frozen since December 1974.

RECREATIONAL FACILITIES

Improvements to Guam's parks and recreation facilities have not kept pace with the needs generated by the Island's recent rapid growth. Pressures for new, expanded and improved areas and facilities stem from a growing resident population, increasing numbers of tourists, and to a lesser extent, the military. The fact that Guam's resident population is such a relatively youthful one increases the need for recreational facilities of certain types.

The tourist industry, the visitors Guam now attracts, and the large number of nonresident alien workers on the island have had an impact on Guam's parks and related facilities. On the other hand, tourists provide a major portion of the funds earmarked for new and improved park and recreation facilities through the 10 percent room tax--called the Tourist Attraction Fund. The rest of the money for these facilities has come primarily from the General Fund and Federal grants of matching funds.

There is yet another impact of the Island's growth on recreation opportunities for local residents. In earlier years, when there were fewer people on Guam, more open space, and lower land values, local residents had relatively free access to green areas, beaches, streams and the like, regardless of who owned the area. Now some of these lands have been sold and put to other uses, and many are posted with "No trespassing" signs.

In 1966, the Government of Guam designed an ambitious parks and recreation improvement program--referred to as the "Paradise Plan", which was updated and reissued in 1973. The funds for these improvements are to come primarily from federal grants, the General Fund and the Tourist Attraction Fund. However, certain of the federal allocations have been drastically reduced in recent years, and appropriations from the latter fund have been somewhat slow in coming forth. Even after the monies have been appropriated, there is an additional time lag before the actual creation of new or improved parks and recreation facilities occasioned by project planning, design, various required reviews and approvals, contract bids and award, and finally, construction.

A major concern regarding recreational and especially athletic facilities has been generated by Guam's agreement to host the Fifth South Pacific Games during the summer of 1975.

An inventory of the Island's recreational/athletic facilities can be seen in Table X.

In addition to the public parks and sports facilities listed in Table XIV, the island has a small museum located in Agana; two 18 hole civilian golf courses, and one 18 hole golf course located at Barrigada for the military. There is also a cockpit located in Tamuning; seven movie houses available to civilians, and several movie houses located on the military bases. A roller skating rink is located at Dededo, and there is one bowling alley located in Tamuning for the civilian population, and several are located on the military bases to serve the military.

Guam does not, however, have any public auditorium, nor are there any commercial live theatre facilities -- unless the movie theatres are converted expressly for live productions. On the other hand, radio and television entertainment is available in most of Guam's homes. There are also numerous nightclubs and facilities for live orchestration and dancing at restaurants and hotels.

TABLE NO. XIV

RECREATION AND SPORTS FACILITIES

	Area
Agana Recreation Area, Paseo: Basketball Court and two baseball fields, Tennis Court	30 acres
Agana Heights: Baseball Field and Basketball Court	1 acre
Agat Recreation Area: Basketball Court	12.6 acres
Asan Recreation Area: Basketball Court	13.106 square meters
Barrigada Recreation Area: Basketball Court and Tennis Court	13.197.98 square meters
Dededo Recreation Area: Basketball Court, Softball Field	1 acre
Inarajan Recreation Area: Basketball Court	10.000 square meters
Maina Recreation Area: Basketball Court	10.000 square meters
Mangilao Recreation Area: Basketball Court, Softball Field	5.6 acres
Merizo Recreation Area: Basketball Court	1 acre
Mongmong-Toto-Maite: Basketball Court, Softball Field	5 acres
Santa Rita Recreation Area: Basketball Court, Softball Field	9.016 square meters
Sinajana Recreation Area: Basketball Court, Softball Field	5 acres
Talofofo Recreation Area: Basketball Court, Softball Field	1.857 square meters
Tamuning Recreation Area: Basketball Court, Softball Field	17.6 acres
Tumon Recreation Area; Basketball Court, Softball Field	10.136 square meters
Umatac Recreation Area: Basketball Court	1 acre
Yigo Recreation Area: Basketball Court, Softball Field	20.136 square meters

Notes: 1. Baseball Field (1) at Paseo can be converted to softball. All others are sandlot type.

2. All outdoor basketball and tennis courts are sub-standard in size and quality.

PARKS

	Area in Acres
Agana	
Administration Grounds	5.5
Beach Front, East	10
Beach Front, West	8
Boat Basin	23.
Fort Apugan	2
Government House	9
Latte Park	1
Marine Drive Strip	4
Padre Palomo Memorial	.75
Paseo de Susana	30
Pigo Triangle	.03
Plaza de Espana	2.5
San Ramon Hill Triangle	2.5
Skinner Plaza	2.8
Tolai Acho	.8
Agat	
Agat-Sumay Memorial Park	9.35
Taelayag Bridge	.2
Taleyfac Bridge	.2
Nimitz Beach	7
Asan	
Libugan Vista	2
Memorial Beach	1.3
Asan Point	16
Asan Recreation	3.3
Barrigada	
Aspengo	1.5
Community Park	8
Dededo	
Botanical Garden	130
Buffer Strip	20
Central Park	4.9
Civic Center	1.9
Kaiser Green	20
Lot 5007-2	1
Regional Park	239

	Area in Acres
Inarajan	
Bay	8
Saluglula Pool	7.9
Merizo	
Bell Tower	.5
Tot Lot	.2
Pier Park	5.8
Piti	
Atantano Bridge	30
Taguac Cemetery	
Pedro C. Santos Memorial	2
Tepungan Beach	1.0
Santa Rita	
Fort Santa Cruz	1
Recreation Park	1
Fort Santiago	1
Talofofo	
Talofofo Falls	17
Ipan Beach	4.5
Talofofo Surfing Beach	7
Tamuning	
Hospital Grounds	3.7
Laderan Tumon Overlook	2.6
Matapang Beach	5.2
Puntan dos Amantes	28.76
Sirena Beach	16.8
Tamuning Park	2.6
Ypao Beach	30
Umatac	
Fort Nuestra Senora del Carmen	2
Fort Santa Angel	.2
Monastery Ruins	.6
Overlook: Agat to Umatac	
Sella Overlook	1
Manono Site	1
Sella Bay Bridge	.5
Umatac (two bridges)	

	Area in Acres
Fort Soledad	8
Memorias Park	1
Cetti Overlook	1
Salagnu Site	1
Umatac Bay Park	7.2
Yigo	
Agafa Gumas Park	2.5
Recreation Area	5.1
Yona	
Pago Bay Overlook	1
Tagachang Park	4

SCHOOL SPORTS FACILITIES

	Outdoor	Indoor
John F. Kennedy High School	Football Field 2 Softball Fields 1 Track 1 Basketball Court 2 Volleyball Courts 3 Handball Courts	Basketball Court 2 Volleyball Courts
George Washington Junior High School	2 Basketball Courts 2 Volleyball Courts 1 Soccer Field 1 Softball Field 1 Miscellaneous Field	Basketball Court-concrete Volleyball Court-concrete
Geroge Washington Senior High School	Football Field Basketball Court 2 Softball Fields 12 Volleyball Courts 2 Handball Courts	Basketball Court, good 2 Volleyball Courts, good
Dededo Junior High School	Basketball Court Soccer Field 2 Volleyball Courts 1 Softball Field	Basketball Court-concrete Volleyball Court-concrete
Barrigada Junior High School	Softball Field Basketball Court 2 Volleyball Courts	
Miscellaneous:	Underwater Fishing--Merizo, Ritidian Point Sailing Cycling	Apra Harbor Roads of Guam

Housing:

As of January 1975, it was estimated by Guam Housing and Urban Renewal Authority that 6,193 of Guam's 12,191 houses (some 50.6%) were substandard. This situation has principally resulted from the two traumatic events of Guam's recent history: the occupation and subsequent liberation of the island during the Second World War and Typhoon Karen in November 1962.

What constitutes adequacy in housing in a typhoon zone is, of course, a higher standard than would be required in a gentler climate. Almost all housing built in the last decade has been of the concrete-panel or concrete-block variety, with poured roofs of concrete. The prevalence and industry of local termites also contributes to the need for heavier, more expensive construction.

The civilian housing market is currently characterized by a glut of new units. Late 1974 and early 1975 witnessed a sudden and severe decline in the construction industry on Guam, with half the existing firms terminating operations. As of March 1975, several remaining Korean-owned members of the industry faced bankruptcy or withdrawal from the market.

The problem for the construction firms as well as the population, has been concentration on the needs of the limited upper-middle class segment of the market. With Guam's average per capita income of under $3000, it is clear that demand for houses in the $45,000-$75,000 range would be quite constrained, even if set against a background of plentiful long-term moderate interest loans, which has not been the case. Subdivision housing is also unsuited to the Guamanian lifestyle--rooms are typically too small for large families and lot size cannot accommodate the outdoor living style indigenous to the island.

At the beginning of 1975, 480 U.S. Navy families and 950 U.S. Air Force families were living in civilian housing. Both branches of the military service have experienced difficulty in obtaining suitable bid prices for new construction or satisfactory existing housing at appropriate purchase/repurchase or rental rates.

In the absence of changes (not anticipated) in the availability of low-cost financing and a reorientation on the part of contractors to fill Guam's needs at lower profit per unit, it can be anticipated that housing conditions faced by most Guamanians will, in fact, worsen in coming years.

Conclusion:

Guam's continued growth is severely handicapped by the lack of available capital to construct public facilities.

The continued development of Guam's economy is dependent upon the development of Guam's water resources and supply system. Tourism and especially the development of agriculture will be stymied if Guam fails to expand her water facilities. The cost of water expansion over the next five years has been computed at $18.8 million. The General Fund is unable to finance any water projects for FY 76, and it is uncertain how the water master plan will be funded in the future. No other sources of funds have as yet been identified. On the other hand, the lack of sufficient water will prevent the location of new industry and commerce on the island.

The lack of adequate sewer facilities is also a critical impediment to Guam's future growth. Failure to provide an adequate sewer system jeopardises Guam's existing limited water supply, and should outbreaks of disease occur on Guam this would not only threaten the wellbeing of the resident population, but it would also have a detrimental impact on Guam's tourist industry. The cost of expanding the sewer system over the next five years has been estimated at over $40 million. In the immediate future Guam lacks the local funds necessary to match EPA funding. Thus, it is now undetermined how Guam's sewer expansion is going to be funded.

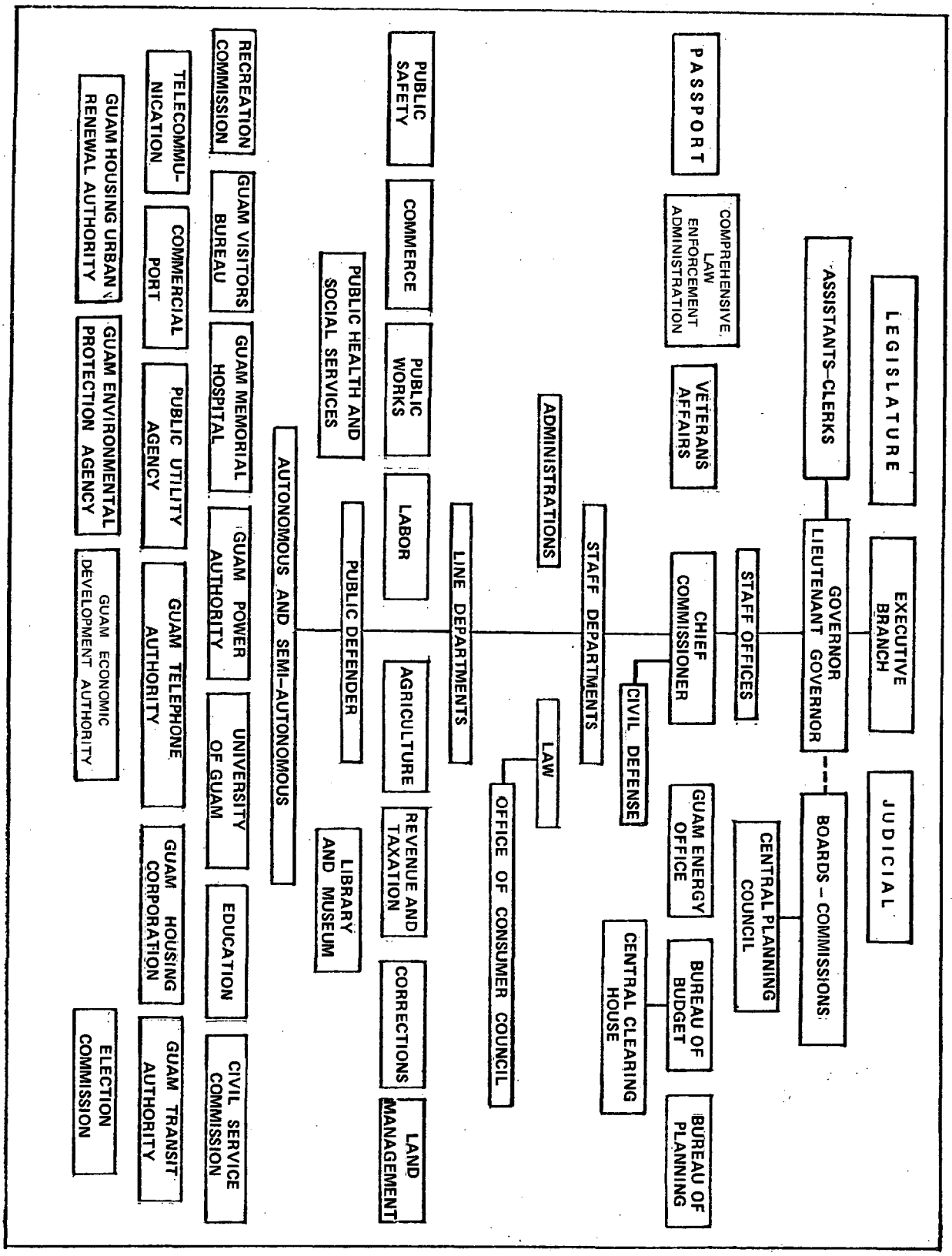
The lack of an adequate public hospital has already caused the Guam Memorial Hospital to lose its accreditation. The cost of constructing a new hospital has been estimated at a minimum of $30 million. The cost of supplementing the hospital facilities currently under construction by the Catholic Diocese of Agana has been estimated at a minimum of $20 million. Although a Hospital Fund was established for the construction of the hospital, and a total of $18 million was appropriated to the fund, approximately $8 million has been withdrawn from the fund to meet other needs of the Government of Guam. It is possible that further withdrawals from this fund will reduce it to $3 million by the end of FY 75.

Guam is dependent upon her tourist industry for a large portion of her revenues. Yet tourists and their agencies complain that Guam has little to offer the tourist by way of recreational facilities. Again, Guam lacks the funds needed to invest in the tourist industry to ensure that tourists will continue to visit Guam.

It is a fact that any underdeveloped or rapidly developing country requires a heavy investment of capital to construct the basic infrastructure and public facilities. Guam lacks the capital

necessary to invest in her growing economy and now faces a critical period in her history in which she might lose the tourist trade to other competing countries--including the Philippines, Micronesia and the northern Marianas. Guam urgently needs to produce food. But the lack of water supply for irrigation will prevent her from developing her agriculture. Guam needs adequate housing to house her growing population. Without housing at a reasonable cost, business investors will not be attracted to Guam. Guam's highways, telephone and power system also requires expansion to meet already existing demands. Again, Guam needs considerable capital investment to support these systems.

TABLE NO. XV
ORGANIZATION OF GOVERNMENT OF GUAM



Local Government:

As a possession of the United States, Guam lies under the sovereignty of the U.S. Congress. Under the terms of Article IV, Section 3, Clause 2 of the Constitution, the U.S. Congress has full plenary powers over Guam: "The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be so constructed as to Prejudice any Claims of the United States, or of any particular State".

In August, 1950, the U.S. Congress enacted the Organic Act of Guam establishing a three-branch territorial government responsible directly to the Secretary of the Interior. This Act, amended several times since 1950, is still currently in effect. It established a unicameral Legislature, a Judicial and an Executive Branch. The Executive Branch is organized as illustrated in Table No. XV.

The jurisdiction of the territorial government, commonly referred to as the Government of Guam, covers the entire territory of Guam, with the exception of the military reservations which are under the jurisdiction of the U.S. Department of Defense. Even there, however, when pertaining to matters of law violation, DOD and the Government of Guam have concurrent jurisdiction (48 U.S.C.A. 1704 (1974) Suppl.). Unlike the States of the United States, Guam has no other county or municipal governments.

Local Planning Agency

Public Law 12-200, enacted January 10, 1975, created a Central Planning Council and a Bureau of Planning.

Central Planning Council: The Council consists of seven members appointed by the Governor from among the heads of departments and agencies. Chairman of the Council is the Director of the Bureau of Planning. The Council is authorized by law to act as an advisory, reviewing and coordinating body to harmonize planning activities at all levels of government.

Bureau of Planning: The Bureau of Planning has been designated the responsibility of long-range comprehensive planning for the social, economic and physical development of Guam. Section 62019 of Public Law 12-200 authorizes the Bureau "to apply for and accept grants, loans, contributions, appropriations and assistance from the federal government and from any other sources, public or private, and to enter into and carry out contracts or agreements in connection therewith, and include in any contract for financial assistance with the federal laws as it may deem reasonable and appropriate..."

Included in the long-range development plan for Guam to be prepared by the Bureau of Planning there must be "a public services and facilities element showing general plans for sewerage, refuse disposal, drainage, and local utilities, and right-of-ways, easements, and facilities for them..." There must be "a public building element showing locations and arrangements of civic and community centers, public schools, libraries, police and fire stations, and other public buildings..."

The jurisdiction of the Bureau of Planning extends to all the departments and agencies of the Government of Guam, including the autonomous and semi-autonomous agencies. All the major departments of the Government of Guam have their own technical planning units which will continue to conduct specific technical planning within their own fields. These plans will be reviewed by the Bureau of Planning and absorbed into the overall Master Plan for Guam if they are found to be consistent with long term goals and objectives.

Goals for Guam Commission

The Goals for Guam Commission was established by Executive Order No. 75-10 on February 8, 1975. The Commission, composed of 25 members representing a cross-section of the community of Guam, is charged with the responsibility of studying the impact of scientific and technological influences on Guam's economic, political, cultural, and social systems. Based upon its findings it is authorized to identify appropriate goals for Guam's future development.

Logistic support for this Commission is provided by the Bureau of Planning.

Local State Clearinghouse

A Central State Clearinghouse was established by the Governor of Guam on October 29, 1974, by Executive Order No. 74-32. The Governor then designated the Bureau of Budget and Management Research as the State Clearinghouse for Guam to provide for improved coordination and control of all federally assisted programs. On February 6, 1975, the Bureau of Budget directed all departments and agencies to submit copies of all current federal programs for its review, and on that same date the Director of the Bureau of Budget established a Clearinghouse Committee within the Bureau to review all pertinent documents and materials relating to federal programs.

The clearinghouse within the Bureau of Budget and Management Research is the only official clearinghouse on Guam.

Federal Planning Agencies

The U.S. Department of Defense has the responsibility for planning its own activities on Guam. Any plans to expand or decrease operations do have considerable repercussions on government planning, on government revenues, employment, utilization of land, and upon Guam's overall economic development. Specific plans by the local Navy and Air Force Commands have, in the past, had a definite and direct impact on Guam's plans to construct public education facilities, highways, expansion of utilities, etc. Both public and private housing plans are also directly affected by increases or decreases in military personnel stationed on Guam.

As an example of the potential impact federal planning can have on Guam, approximately two years ago the Government of Guam was informed by Commander, Naval Forces, Marianas (ComNavMar), that as a result of planned expansion of Naval activities on the island, Naval personnel and their dependents would increase in numbers over a three-year period at the rate of 8% per year. Based on this information, the Government of Guam amended its plans for school facilities to include additional classrooms in the vicinity of the Naval Base. One year later, the Government of Guam was informed that the Navy's plan to increase personnel had been indefinitely postponed.

The economy is directly affected by the volume of military spending on the island. Military construction activities result in increased employment, and increased revenues for the Guam Treasury. Likewise, any change in DOD policies and plans resulting in a reduction in force, curtailment of construction or military operations, has the impact of reducing employment and reducing the flow of dollars into the economy.

During the past six months, air squadrons based at Andersen Air Force Base were transferred from Guam to mainland bases. This resulted in a reduction of employment at Andersen Air Force Base and a reduction in income taxes for the Guam Treasury. In February, 1975, Defense Secretary Schlesinger announced in his report to the U.S. Congress that the Navy will no longer maintain three carriers in the Western Pacific. He said the Navy would keep only one out of every three carriers on station in distant waters during a normal peacetime routine. The reassignment of two carriers, and all the miscellanouse smaller craft which normally accompany carriers, to other locations will entail a considerable loss in Section 30 revenues to Guam (federal income taxes returned to Guam). Additionally, the consequent reduction in workload at the Naval Ship Repair Facility is expected to result in a significant reduction in employment of Guam residents at the SRF.

The presence of the U.S. military on Guam has, in the past, provided the backbone of the local enonomy. In fact the only plans on Guam were military plans. At one time, when Guam was subject to the Naval Security Clearance regulations, which cut the island off from commerce with the outside world, the U.S. military commands were the substance of Guam's economy.

It is precisely because the ebb and flow of DOD activities on Guam does have such a major impact on all aspects of the development of the economy that it is becoming evident that Guam should attempt to develop a strong independent economy which will not collapse should DOD suddenly amend its own plans. The Government of Guam recognizes the need to broaden the base of Guam's economy and to stabilize it against the day when even more military activities are withdrawn from the island.

Industrial Development Groups

There are no industrial development groups per se on Guam. However, the Guam Chamber of Commerce is becoming more actively involved in attempts to expand the base of Guam's private industry by inviting branch offices to locate on Guam, and by generally advertising on the U.S. mainland the benefits of conducting a business in the territory. The Chamber also, within the last month, submitted an Island Beautification Plan to the Governor for his review.

Private industry has been involved in various economic and community development plans. The Kaiser Corporation, for example, has been involved in community planning and the construction of subdivisions for low-cost housing. Other groups such as the California Development Corporation and the Guam Contractors Association have also played their part either by influencing or implementing local government policies, and plans with respect to construction and industrial development.

Otherwise, there are no industrial development groups organized specifically to plan islandwide industry or development.

III. POTENTIALS FOR ECONOMIC DEVELOPMENT

Problems in General:

Guam has an unbalanced, overly-dependent and underdeveloped economy.

The economy is unbalanced because of heavy reliance upon public sector employment and construction; because of reliance on tourism and construction as the two major civilian industries, and because over 90% of all consumer goods are imported.

The economy is overly-dependent on three major 'industries'--government, construction and tourism.

The economy is also underdeveloped because, to date, there has been little attempt to develop Guam's natural and human resources to the fullest extent. Human resources are not yet developed to the point where they are fully productive, and Guam's ocean and land resources are almost totally undeveloped insofar as agriculture and fishing are concerned.

Specific Problems:

Human Resources: The potentials of Guam's human resources are underutilized due primarily to a lack of adequate training, education, and opportunity. This lack of training is especially evident in the skilled labor and professional categories. In particular, skills training for the local labor force, and acceptance of blue collar employment, have not kept pace with the rapid technological changes that have taken place on the island.

Female labor has scarcely been tapped by commerce or industry, partly due to the fact that many women stay home to care for children, and many have few skills to market. Generally speaking, women on Guam have not been afforded the opportunity to develop their talents to the full, to contribute their part to the development of Guam's economy.

Guam's potential labor force would be limited in size even if it were fully trained. Many prospective investors have, in the past, decided not to establish business on Guam due to the lack of a large and productive labor pool.

Additionally, Guam's limited labor supply has resulted in the importation of relatively cheap labor from the Orient which, despite the imposition of a system of prevailing wage rates, has led to a depression of local wages as compared to wage standards

on the U.S. mainland.

High Cost of Living: Guam imports about 90% of the products consumed on the island. The high cost of goods is due to a number of factors: freight costs over long distances by air and sea; costs of warehousing; lack of healthy competition; the imposition of a 4% gross receipts tax at the wholesale and retail levels which in some cases increases the cost of goods by over 8%; the fact that Guam presents a captive market, and the fact that goods are sold in insufficient volume to enable the merchant to reduce his sales price.

Dependence on Public Sector: The territory is heavily dependent on federal and local government agencies for employment. When public sector agencies reduce their payrolls there are only limited alternative job opportunities available to those employees who are laid off. The recent reduction in force of 450 civil service employees at the Guam Naval Base, for example, has created a serious unemployment situation. Additionally, if the territorial government were to reduce its payroll due to a decline in revenues, or if it were to mechanize some of its functions, many more workers would be displaced and would find little opportunity or choice of work in the private sector.

Tourism: Guam is also heavily dependent on the tourist industry over which she has little control. Adverse political or economic factors in Japan, Guam's chief source of tourism, could seriously curtail the industry overnight. Guam desires to cultivate other sources of tourism in order to stabilize the industry, but has little or no influence over CAB (Civil Aeronautic Board) decisions determining air routes in and out of Guam. Guam therefore needs to diversify the base of her economy by developing other more reliable industries.

Small Consumer Base: An additional factor limiting commerce and competition on Guam is the small consumer base. The existence of military post exchanges and commissaries which offer low-priced goods for sale, reduces the private sector's consumer base by almost one-half. Although the population as of December, 1974, was approximately 108,000, a local merchant could count on a consumer base of less than 65,000. This situation has in the past provided a deterrent to companies who considered establishing a business on Guam.

Capital: Guam lacks adequate local investment capital. The rapid economic development of the past few years was financed to a considerable extent by alien investment and federal construction fund. In the future Guam must seek alternative sources of capital and develop her own capital resources.

Infrastructure: Guam's infrastructure is relatively undeveloped, especially in the southern sector of the island. Communications and transportation facilities are also inadequate, and these factors are a considerable constraint on further commercial and industrial development.

Human Resource Potentials:

The adult resident work force of Guam is limited in size and ability, and is generally underutilized. As of December, 1974, 43% of the total work force, and 53% of the resident work force, were employed in the public sector and were therefore commercially unproductive. Inadequate education or training in terms of the economic realities and needs of the island has hindered the development of both human potentials and Guam's natural resources. The resident labor force is thus relatively underemployed. The potential local work force could be considerably more productive if a large portion of it were transferred from the public sector into private industry. This, however, would require an intensive and widescale training program to reorient and qualify former public sector employees to work in the private sector. The size of the work force could also be expanded by training and utilizing the talents of the female sector of the population.

The median age of Guam's population is estimated at 20.4 years. Thus large numbers of young people newly enter the labor market each year, the majority of whom have had neither experience nor adequate training to render them fully productive. The ranks of the underemployed are therefore swollen each year as youngsters graduate from school. Moreover, due to the current economic recession, Guam anticipates a serous rise in unemployment statistics during midsummer, 1975, both as a result of school graudates flooding the labor market, the inability of the Government of Guam to absorb additional employees, the decline in revenues available for the existing payroll, and the fact that private industry is laying off employees.

It is therefore concluded that fiscal year 1976 will witness a much larger local work force than Guam has heretofore seen, whose potentials will be available for a considerable expansion of the base of the island's economy.

Natural Resource Potentials:

The Ocean: The ocean that surrounds Guam is a major untapped natural resource. The marine life in the ocean provides the potential for the development of a fishing industry which could include catching the fish, processing, canning, and distributing the final product.

The possible mineral resources of the ocean have beem almost totally untapped, and the surface of the ocean as a medium of transportation between Guam and Micronesia, and the many points to the east and west is also an untapped potential. Additionally, the sports resources which the sea provides are scarcely utilized.

Guam's location and ocean environment could also be exploited by the development of commercial ship repair facilities and the provision of rescue services for vessels which not infrequently suffer damage and dislocation as the result of inclement weather, and for those whose engines break down on the high seas.

Strategic Location: Guam's strategic location is only partially utilized. The island's geographic relationship to such countries as Australia, Japan, Malaysia and the Philippines, and her proximity to the northern Marianas and the rest of Micronesia is almost totally unexploited from the point of view of potential transportation routes, tourism, communications, trade, exchange and commerce.

Water: Guam's annual rainfall is not adequately utilized. Rain water runs off into streams and rivers, especially in the southern part of the island, and carries precious soil and minerals into the ocean with it. The rain water could be harnessed and utilized for residential, agricultural and industrial purposes which would facilitate the development of the economy.

Sunshine: The energy and heat of the year-round tropical sun is almost totally unutilized. The warm, sunny weather has not been utilized to any significant extent to produce food, fruit, or flowers, and little or no effort has been made to harness solar rays for the production of energy. Even the tourist industry has not completely exploited the possibilities of Guam's climate.

Wind: The trade winds blow over Guam almost continuously. This energy source has not been tapped to produce energy, nor is the sport of sailing widely exploited for both tourists and residents.

Soil: Guam's fertile soil located in some parts of the island is almost totally unexploited for the production of fruits, nuts, vegetables, root crops, flowers or grazing grasses, and no attempt has been made to cultivate trees which would yield hard termite-proof wood--such as Nara or Ifil wood--which could be utilized for construction.

The open pastures on Guam's hillsides could be used for the grazing of cattle, goats, pigs and horses, but this natural resource is very little used. Moreover, the sports and tourist potentials of the mountainous beauty of southern Guam have only been partially used.

Legal/Political Climate: The fact that Guam is an American territory provides an attractive legal/political climate to offshore industries considering Guam as a possible base of operations. The stability of the American democratic form of government and the political protection afforded the island as a result of its relationship to the United States, guarantees the prospective investor freedom from the fear of sudden nationalization and forfeiture; and freedom from political harassment.

The stable legal system under which Guam's commerce operates also provides security to the American investor, incorporating known rules and regulations for such matters as currency transactions, contracts, banking and insurance. In addition, the people of Guam themselves possess a rich heritage of culture and traditions which renders life on Guam pleasant and attractive to visitors and tourists.

Proposals for Development:

Since Guam's present-day economy is so subject to conditions and influences beyond her own control, it appears logical that Guam should attempt to stabilize her economy through the development of her own innate resources both human and natural.

Agriculture: Guam possesses the climate and soil requisite for the development of agriculture. At the present time 90% of all food consumed on the island is imported at great expense. In times of man-made or natural disaster, during times of shipping stikes, Guam's sources of food supply are jeopardized. The production of locally grown produce would serve to reduce the cost of food, reduce the amount of dollars flowing out of the economy, would help to reduce the excessively high volume of imports over exports, would contribute to a greater self-sufficiency in the economy, and would provide a reliable source of employment for a large number of Guam's residents.

Supporting Services: In order to develop agriculture it would be necessary to extend an adequate water supply system to the south and interior regions of the island. At the present time the water supply to the southern end of the island is totally inadequate even to serve the small number of residents living there. It would be necessary to build dams, reservoirs and storage tanks so that adequate water would be available to farmers during the dry season.

If agriculture is to become a significant industry on Guam, it would also be necessary to construct access roads into potentially fertile areas in order to open up the island to would-be farmers. At the present time, apart from the major roadway which runs parallel to the shoreline around southern Guam, there are almost no highways or access roads into Guam's richest farmlands.

Additionally, it would be necessary to establish a large, centralized public market where the local farmer could exhibit and sell his produce. At the present time Guam lacks an adequate outlet for local agricultural produce.

Finally, it would be necessary to provide training, technical assistance and capital assistance to prospective farmers. If agriculture is to play a significant part in the development of Guam's economy, education and training in the public schools should be stepped up to encourage an interest in farming.

Husbandry: The breeding of hogs, goats, cattle and poultry would supply meat for the local market; would reduce the cost of meat which is currently imported at high price; would help to reduce the high volume of imports; would help to stem the flow of dollars out of the economy; would lead to such activities as poultry processing, slaughter house and canneries; and would provide stable and reliable employment for many of Guam's residents.

Supporting Services: If husbandry is to develop as a viable industry on Guam there would be a need to construct such facilities as a slaughter house, a poultry processing plant, a cannery and a freezing plant. A public market place for farmers to sell their produce would also be needed, along with access roads into the interior sectors of the island.

Education and training would be needed to generate interest and skills in husbandry.

Fishing: The people of Guam consume large quantities of fish imported at great expense from other countries. Since edible fish are abundant in the waters around Guam, the island should benefit directly from the harvesting of this resource, instead of paying dearly to import frozen fish from the United States or the Orient. The development of a fishing industry would result in retaining money on the island, would serve to reduce imports, and would result in increased employment opportunities.

Supporting Services: To establish a fishing industry it would be necessary to invest capital for the construction of fishing wharfs, marinas, freeze plants and canneries. Capital would also have to be invested in vessels and equipment. Additionally, channels through the reefs would be widened and deepened and safe harbors constructed to protect vessels during foul weather. Fish ponds for the cultivation of fish should also be constructed.

Again, education and training of Guam's people would be necessary if a fishing industry is to be successful on Guam.

Tourism: The visitor industry was born in 1967 when Pan American Airways inaugurated its first flight between Japan and Guam. There is reason to believe that flights from Australia, Malaysia, Micronesia and the Philippines would more than triple the current volume of tourism on Guam. Since tourism has provided a steady flow of money into the economy and into Guam's treasury, and since it provides a source of employment for Guam residents, Guam should attempt to open new air routes by working through the CAB and other federal agencies.

The tourist potential has scarcely been tapped on Guam, but if fully developed it would provide a wide variety of direct and indirect employment opportunities to the people of Guam. The tourist industry itself would stimulate the recreation and entertainment industries, handicrafts, restaurants and other types of related services and industries. And since tourism can be classified loosely as an "export", it would serve to balance and pay for the high volume of imports to Guam.

Supporting Services: If tourism is to develop further on Guam it will be necessary to upgrade the territory's general infrastructure. It will be necessary to expand the water and sewer systems, expand the power and telephone systems, and to improve Guam's highways. Additionally, it would be necessary to expand and improve Guam's International Air Terminal. Sports and recreation facilities would have to be increased and upgraded, and access roads built into the interior of the island for tourists who enjoy safari-types of excursions.

Employment opportunities should tourism expand would be almost unlimited. It will be necessary, however, to educate and train local residents to play a more significant part in the promotion of tourism if they themselves are to benefit materially from the industry.

Light Industry: Goods produced in Guam and exported to the United States may enter duty free under the provisions of Section 301 of the U.S. tariff laws--provided they do not contain dutiable foreign materials exceeding 50% of the total value. Since Guam is a free port, a manufacturer could theoretically obtain raw materials, parts or sub-assemblies from foreign sources duty free, add 50% or more to their export value, and then export them to the United States at competitive prices. Provided the federal government does not clamp a restrictive quota on such goods--as it did in the case of the watch industry--there are numerous possibilities for various types of light industry such as processing, assembling and manufacturing. These types of industry could employ a substantial number of men and women if they were given the necessary initial training. There are potentials on Guam for a soap factory, fish cannery, garment factory, furniture factory, cement plant, textile processing, optical assembly, hand tools, copra processing, paint factory, boatbuilding, etc.

Employment in any of these industries would provide a preferable alternative for many of Guam's workers to labor in the fields. Moreover, light industry would provide an appropriate source of employment to local women.

Problems and Constraints:

Agriculture: Three major constraints on the development of agriculture on Guam are: (1) the lack of government revenues to extend the water system into the southern sector of the island; the lack of funds available for the construction of access roads, and the lack of available capital to construct a public market;

(2) the fact that much farm land is now under the control of the federal government and has lain neglected, unutilized and unweeded for over two decades; and

(3) the lack of adequate training and knowledge in the methods of modern commercial farming.

The above constraints could be overcome by an infusion of capital into those facilities necessary for the development of the agriculture, and by a return of prime agricultural lands currently unused by the Federal government to the people of Guam. The lack of skill and knowledge could also be overcome by education and training in the use of fertilizers, modern farm equipment and other techniques.

Husbandry: If the breeding of livestock is to succeed on Guam it would be necessary to construct slaughterhouse and poultry processing facilities, and to introduce an additional feed mill. Such facilities require an infusion of capital not currently available on the island.

Fishing: Development of the fishing industry would require a large investment of capital by the Government of Guam in such facilities as adequate harbors, marinas, wharfs and a modern cannery. The Government of Guam lacks the capital to promote the fishing industry. Education and training would also have to be oriented towards developing the fishing industry.

Tourism: Three major constraints on the development of tourism are the limited air routes to and from Guam, the lack of adequate recreation and sports facilities, and the inadequacy of the existing terminal facilities. Additionally, promotion of tourism locally to encourage the local residents to participate in the tourist industry would be necessary including appropriate training for the hospitality services.

Light Industry: The high cost of shipping cargo from Guam to the United States is a discouragement to the establishment of light industry on Guam. Since Guam is included within the jurisdiction of the Jones Act, only domestic flag vessels can transport goods from Guam to the United States. Guam is therefore unable to export goods abroad foreign flag vessels whose freight rates could be considerably lower than U.S. domestic freight rates. The high cost of shipping goods to the United States from Guam therefore reduces the margin of profit and the competitive edge which Guam-produced goods might otherwise have.

On the other hand, the mass production of goods on Guam could still provide profits to light industry were a local skilled labor pool available to the manufacturer. In the past Guam's limited and unskilled labor force has provided a deterrent to would-be industries. As Guam's labor pool grows in size, however, the feasibility of successful and profitable nanufacturing on Guam grows. The most obvious constraint at the present time, however, is the lack of skilled or trained labor. It would be necessary to institute training courses for local employees to enable them to participate in light industry.

The high cost of real estate would also require that the Government of Guam establish another large industrial park to entice industry to locate on Guam. This, in turn, would require an investment of capital which the territorial government at this time does not have.

TABLE NO. XVI

PRINCIPAL FEATURES OF TALOFOFO RESERVOIR

Stream Flow

Drainage area at dam	10.8 sq. mi.
Maximum flow (average at 24 hr. period)	2382 cu. ft./sec.
Maximum discharge of record	5707 cu. ft./sec.
Minimum flow	.82 cu. ft./sec.
Maximum flood for spillway design (1000 year storm)	18,133 cu. ft./sec.

Dam and Spillway

Dam

Material and type	Earth Fill
Length of crest	700 ft.
Maximum Height	45 ft.
Maximum Width at base	320 ft.
Width of crest	20 ft.
Upstream slope	1 vertical to 3 horizontal
Downstream slope	1 vertical to 3 horizontal
Upstream slope protection	Riprap above min. drawdown
Leakage protection	Steel sheet piling and grout curtain
Foundation drainage	Pervious blanket (downstream 1/3rd)
Foundation consolidation	Sand drains

Spillway

Location	Over dam
Type	Ogee weir with radial gates
Length	200 ft.
Material	Concrete
Discharge conduit	Concrete lined open channel

Intake Structure

Location	Dam
Type	Upstream slide-gate control

Pump Station

Building location	Intake structure
Pumps	
Type	Turbine
Number and Size	(Two 400 H.P.) (Two 50 H.P.)

TABLE NO. XVII

TALOFOFO - RESERVOIR POTENTIAL YIELD

Storage volume	1300 MG
Surface Area	234 Acres
Usable storage above min. drawdown	913 MG
Evaporation and seepage losses, estimated for six month dry season	-352 MG
Inflow from Talofofo River during six month dry season 1/	+368 MG
Net usable volume during six month dry season	824 MG
Potential domestic yield (180 days) =	4.5 MGD
Potential irrigation supply capacity (1800gal./ acre/day for 180 days)	2543 Acres

1/ Based on record low flow (U.S.G.S.), January-June, 1959

TABLE NO. XVIII

Talofofo Dam

Item	Quantities	Unit Price	Total
Reservoir			
Clearing and Grubbing	234 acres	$ 400.00	$ 93,600
Earth Fill Dam			
(45' high, 700' long)			
Cofferdam	Lump Sum		200,000
Earthwork	Lump Sum		800,000
Cutoff Wall	Lump Sum		400,000
Riprap	10,000 sq.yd.	6.00	60,000
Spillway & Outlet Structure			
Concrete	3,700 cu.yd.	400.00	1,480,000
Radial Gates	16 each	10,000.00	160,000
Appurtenances	Lump Sum		15,000
Intake Structure			
Intake Shaft, Pier Footings	Lump Sum		1,000,000
Pump Station			
Building with Pumps	Lump Sum		300,000
Distribution System			
Asbestos Cement Pipe installed with all appurtenances	Lump Sum		600,000
Access Road			
A. C. Paving from Route 4A to Dam	3,500 L.F.	50.00	175,000
Total Direct Cost			$5,283,600
Contingency Allowance @ 10%			52,836
Total Estimated Construction Cost			5,336,436
Engineering Design, Foundation and Soils Investigation and inspection and contract Administration @ 12%			640,372
Total Estimates Cost, Exclusive of Land & Land Rights			$5,976,808
Total Capital Cost/MG of Annual Yield (4.5 MGD)		say $3,653	6,000,000
Annual Capital Cost/MG (based on 20 year amortization with no interest)		$ 183	

TABLE NO. XIX

Hydrology. Monthly average and minimum river flows are based on U.S. Geological records.

Ugam - Reservoir Potential Yield

Storage Volume	82 MG
Surface Area	13 Acres
Usuable storage above min. drawdown.	72 MG
Evaporation and seepage losses, estimated for 6-month dry season	-25 MG
Inflow from Ugam River during 6-month dry season (1) . . .	+590 MG
Net usuable volume during 6-month dry season	637 MG
Potential domestic yield (180 days) =	3.5 MGD
Potential irrigation supply capacity (1800 gal./acre/day for 180 days) =	1966 Acres

(1) Based on record low flow (U.S.G.S.), January-June, 1966.

TABLE NO. XX.

Ugam Dam

Item	Quantities	Unit Price	Total
Reservoir			
Clearing and Grubbing	Lump Sum		$ 100,000
Earth Fill Dam			
(60' high, 400' long)			1,110,000
Spillway & Outlet Structure			1,200,000
Intake Structure			
Based on MGD firm yield			1,000,000
Pump Station			300,000
Distribution System			600,000
Access Road			
A. C. Paving from Route 4A to Dam	5,000	$ 50	250,000
Total Direct Cost			$3,560,000
Contingency Allowance at 10%			356,000
Total Estimated Construction Cost			$3,916,000
Engineering Design, Foundation and Soils Investigation and Inspection and Contracts Administration at 12%			469,920
Total Estimated Cost, Exclusive of Land & Land Rights			4,385,920
		say	4,400,000
Total Capital Cost/MG of Annual Yield (6 MGD)			2,000
Annual Capital Cost/MG (based on 20 year amortization with no interest)			100

TABLE NO. XXI

Inarajan - Reservoir Potential Yield

Storage Volume	600 MG
Surface Area	76 Acres
Usuable storage above min. drawdown	570 MG
Evaporation and seepage losses, estimated for 6-month dry season	148 MG
Inflow from Inarajan River during 6-month dry season[1]	+230 MG
Net useable volume during 6-month dry season	652 MG
Potential domestic yield (180 days) =	3.6 MGD
Potential irrigation supply capacity (1800 gal./ acre/day for 180 days) =	2012 Acres

[1] Based on record low flow (U.S.G.S.), January-June, 1966.

TABLE NO. XXII

Preliminary Cost Estimate* - Inarajan Reservoir

Item	Quantities	Unit Price	Total
Reservoir			
Clearing and Grubbing	76 Acres	$300	$ 22,800
Earth Fill Dam			
(48' high, 600' long)	.96 of Talofofo		672,000
Spillway and Outlet Structure	.41 of Talofofo		371,870
Intake Structure			
Based on MGD firm yield	.80 of Talofofo		400,000
Pump Station	.80 of Talofofo		120,000
Distribution System	.79 of Talofofo		360,000
Access Road			
A.C. Paving from Route 4A to Dam	1,000 L.F.	$50	50,000
Total Direct Cost			$1,996,670
Contingency Allowance @ 10%			199,667
			$2,196,337
Total Estimated Construction Cost			
Engineering Design, Foundation and Soils Investigation and Inspection and Contracts Administration @ 12%			263,560
Total Estimated Cost, Exclusive of Land and Land Rights		say	$2,459,897 2,500,000
Total Capital Cost/MG of Annual Yield (3.6 MGD)			$ 1,903
Annual Capital Cost/MG (Based on 20 year amortization with no interest)			$ 95

*As of 1973.

TABLE NO. XXIII

Umatac/La Sa Fua - Reservoir Potential Yield

Storage Volume	180 MG
Surface Area	16 Acres
Useable storage above min. drawdown	160 MG
Evaporation and seepage losses, estimated for 6-month dry season	32 MG
Inflow from Umatac River during 6-month dry season(1)	+105 MG
Inflow from La Sa Fua River during 6-month dry season(2)	+106 MG
Net useable volume during 6-month dry season. . . .	339 MG
Potential domestic yield (180 days) =	1.8 MGD
Potential irrigation supply capacity (1800 gal./ acre/day for 180 days) =	1046 Acres

(1)Based on record low flow (U.S.G.S.), January-June, 1966.

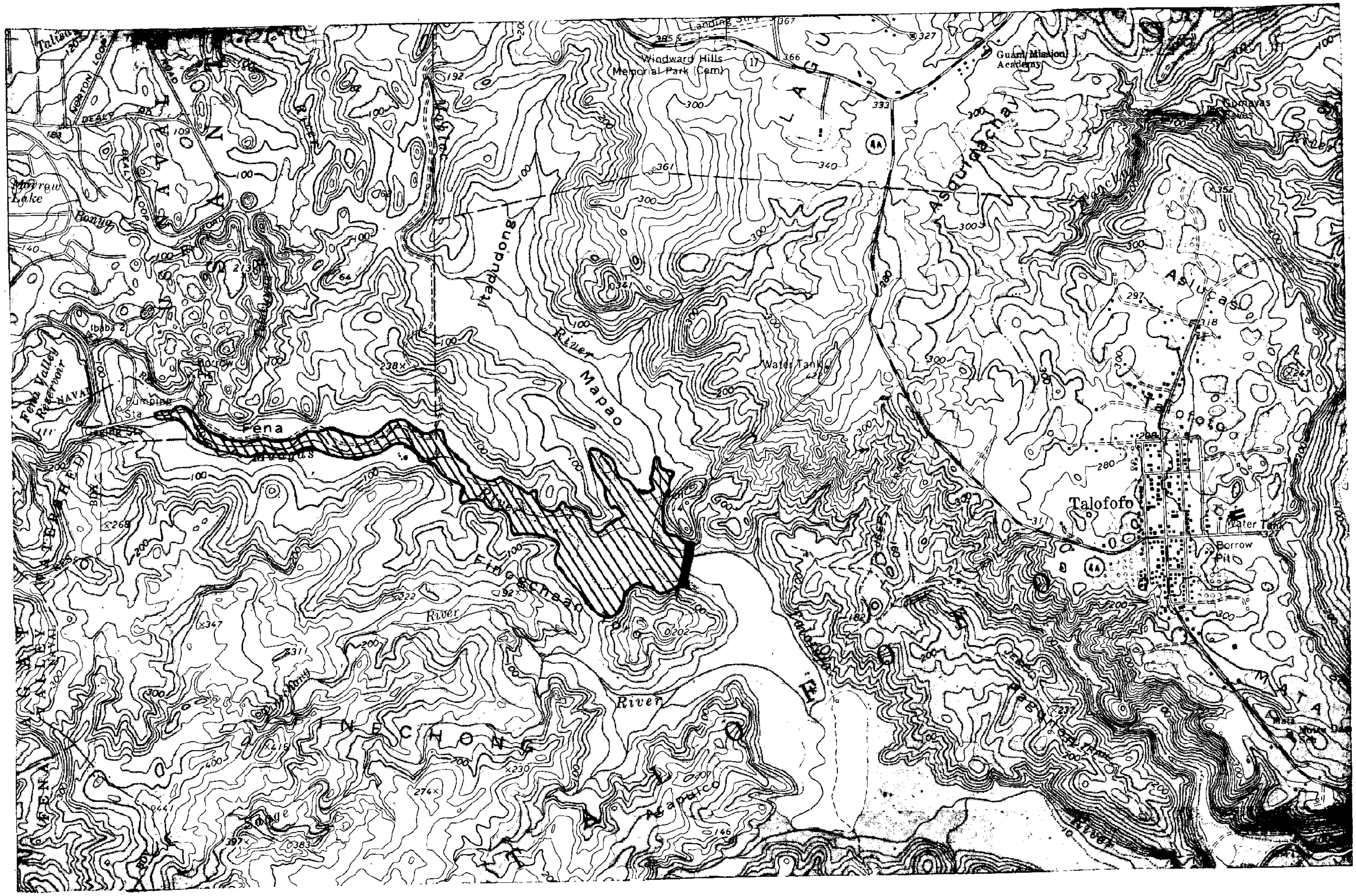
(2)Based on record low flow (U.S.G.S.), January-June, 1960.

TABLE NO. XXIV

Preliminary Cost Estimate* - Umatac Reservoir

Item	Quantities	Unit Price	Total
Reservoir Clearing and Grubbing	16 Acres	$300	$ 4,800
Earth Fill Dam (66' high, 400' long)	1.17 of Talofofo		819,000
Spillway and Outlet Structure	.29 of Talofofo		263,030
Intake Structure Based on MGD firm yield	.40 of Talofofo		200,000
Pump Station	.40 of Talofofo		60,000
Distribution System	.41 of Talofofo		190,000
Access Road A.C. Paving from Route 4A to Dam	1000 L.F.	$ 50	50,000
Total Direct Cost			$1,586,830
Contingency Allowance @ 10%			158,683
			$1,745,513
Total Estimated Construction Cost Engineering Design, Foundation and Soils Investigation and Inspection and Contracts Administration @ 12%			$ 209,462
Total Estimated Cost, Exclusive of Land and Land Rights		say	$1,954,975 2,000,000
Total Capital Cost/MG of Annual Yield (1.8 MGD)			3,044
Annual Capital Cost/MG (based on 20 year amortization with no interest)			152

As of 1973.

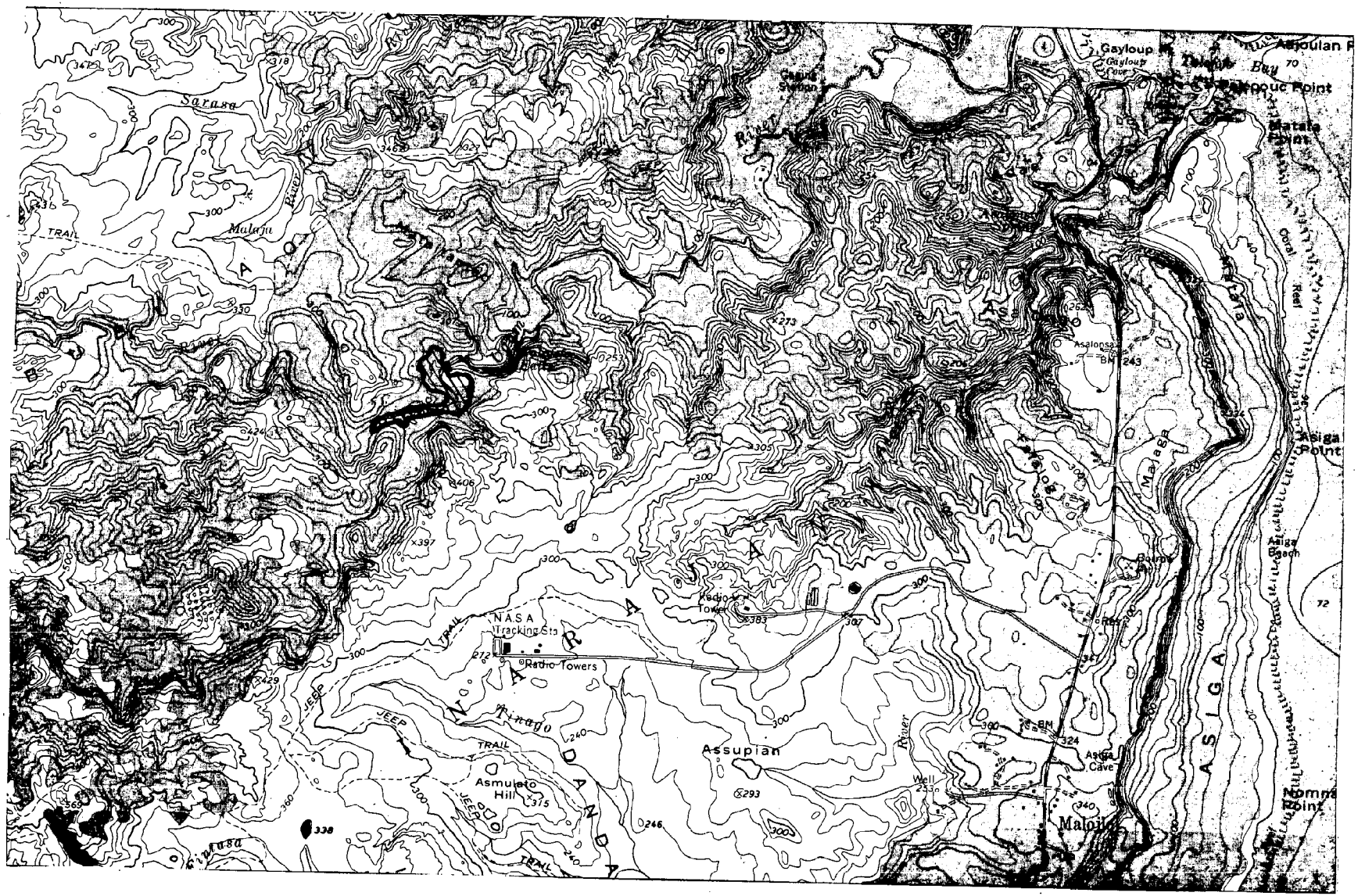


Scale 1:24,000

1 1/2 0 1 mile

MAP NO. 6

TALOFOFO DAM & RESERVOIR

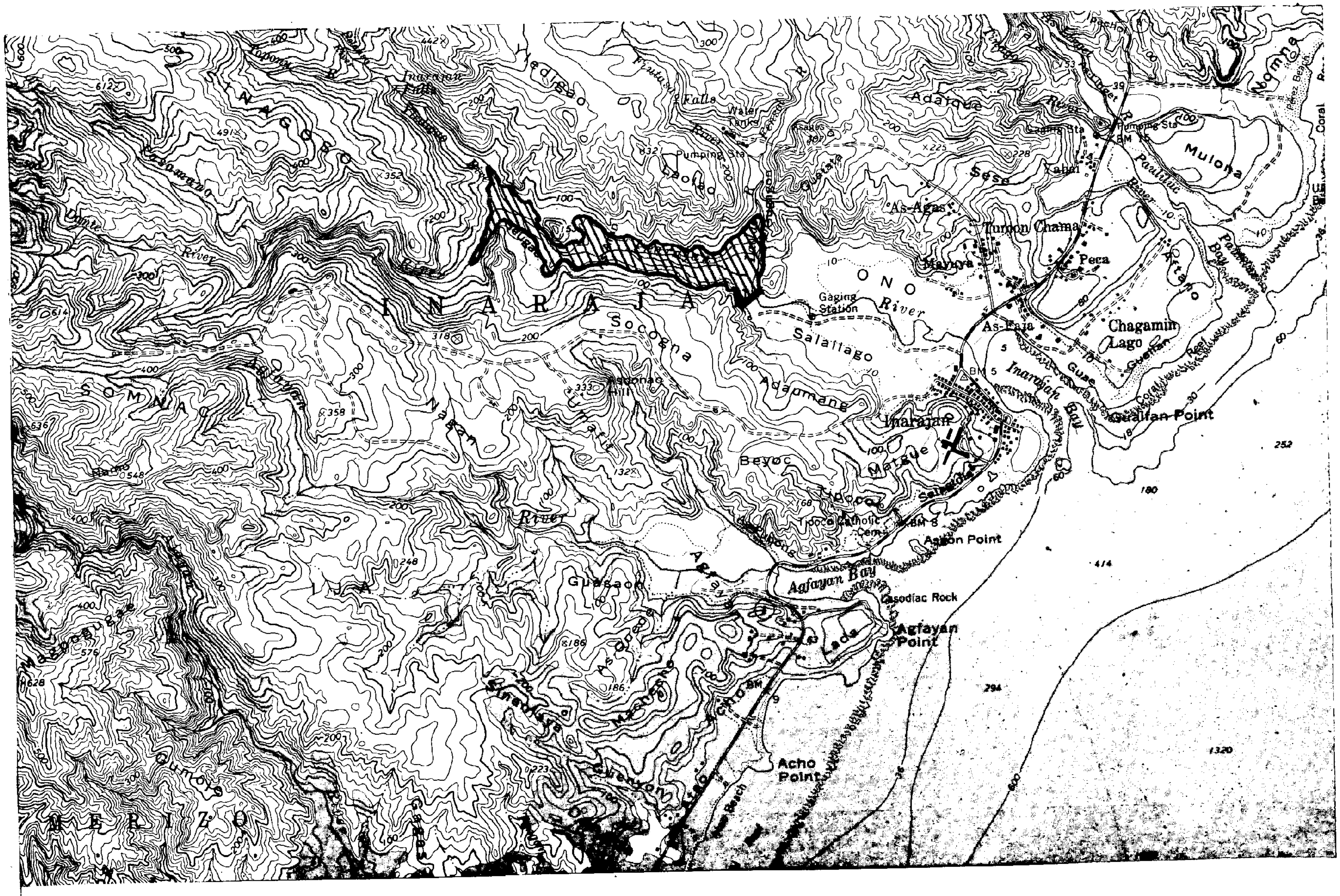


Scale 1:24,000

1 1/2 0 1 mile

UGAM DAM & RESERVOIR

MAP NO. 7



Scale 1:24,000

1 1/2 0 1 mile

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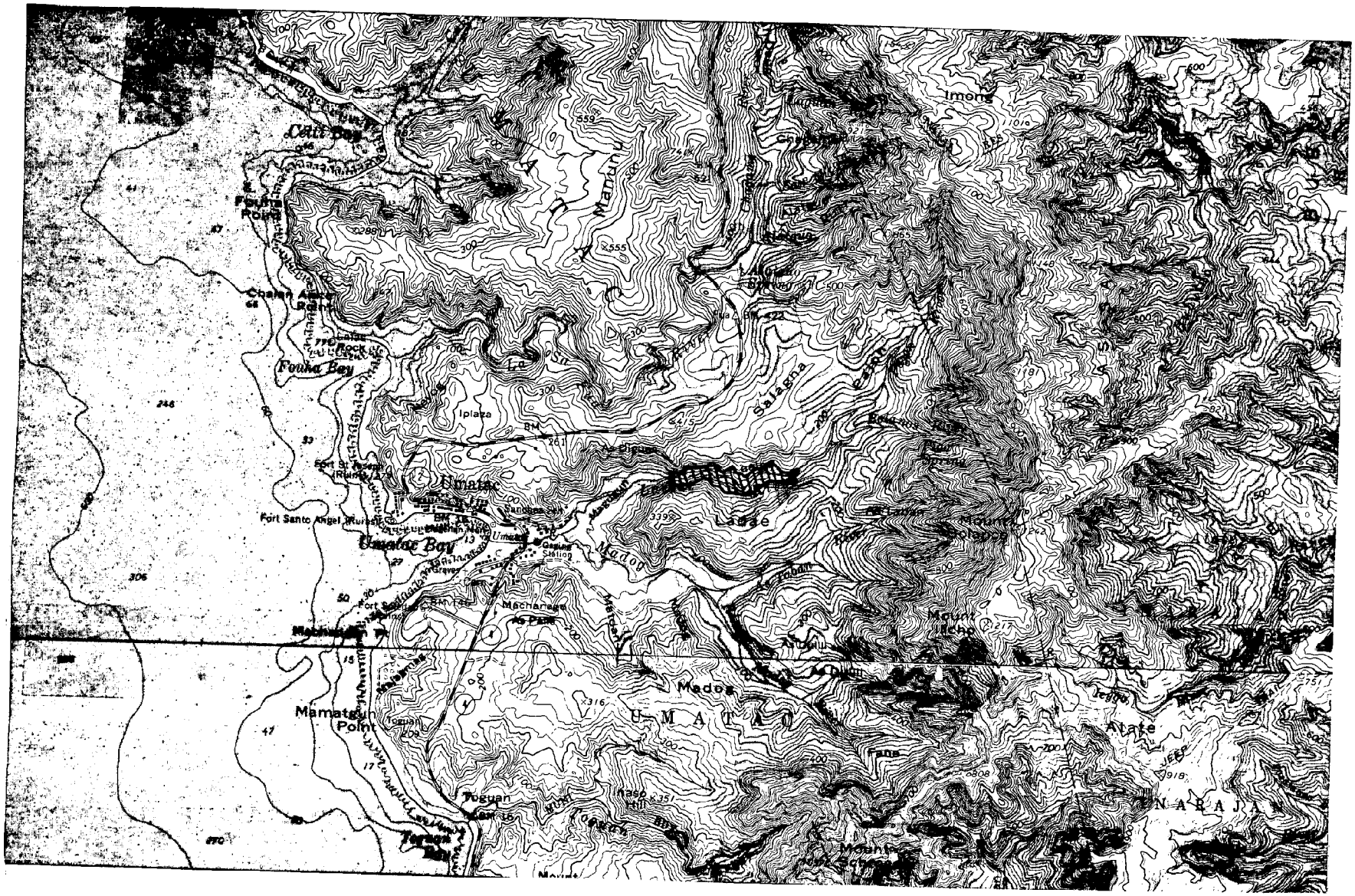
MAP NO. 8

INARAJAN DAM & RESERVOIR



UMATAC DAM & RESERVOIR

MAP NO. 9

IV. DEVELOPMENT STRATEGY

Program for First Year

It is considered that the development of agriculture on Guam is the number one priority among the island's several development potentials. A program to facilitate the development of agriculture is therefore scheduled for fiscal year 1976.

The components of the program include the following: the development of a potable water and irrigation system in the south of the island; the construction of multiple access roads into the interior of the southern portion of the island; the construction of a large public market in Agana; the release of unused federal agricultural lands; the training in modern farm techniques of future farmers; and the purchase of farm equipment by the territorial government for loan or rent to farmers.

Irrigation: The prime areas in the south of Guam suitable for the development of agriculture include the lands around Yona, Talofofo, Chalan Pago, Inarajan and Merizo. In order to cultivate these lands, it will be necessary to dam existing rivers to provide sufficient year-round water for irrigation.

Talofofo River: The cost of constructing a dam on the Talofofo River was estimated in December, 1973, to be $3.8 million (see Table No. XVIII, Preliminary Cost Estimate). Due to inflation, however, costs today would approximate $6.0 million. A dam on the Talofofo River would enable farmers to irrigate 2,543 acres for 180 days during the dry season--during the wet season no irrigation would be necessary. The proposed reservoir would have a storage capacity of 1,300 million gallons, and the impounding area of the dam would be over 234 acres (see Table No. XVII).

Ugam River: Irrigation of the fertile lands between Talofofo and Inarajan would require the construction of a dam on the Ugam River. The cost of construction was estimated in December, 1973 to be about $2.4 million (see Table No. XX, Preliminary Cost Estimate), although when adjusted for inflation the cost today would approximate $4.4 million. A dam on the Ugam River would serve to irrigate over 1,966 acres for 180 days during the dry season. Its storage capacity would be 82 million gallons, and the impounding area of the proposed dam would be 13 acres (see Table No. XIX, Ugam Reservoir Potential Yield).

Inarajan River: Irrigation of farm lands around Inajaran would require the construction of a dam on the Inarajan River. The cost of constructing a dam on the Inarajan River has been estimated at about

$2.5 million (see Table No. XXII, Preliminary Cost Estimate). A dam on the Inarajan River would serve to irrigate 2,012 acres for 180 days during the dry season of the year. Storage capacity would be 600 million gallons, and the impounding area of the dam would be 76 acres (see Table No. XXI, Inarajan Reservoir Potential Yield).

Umatac and La Sa Fua Rivers: The cost of constructing a dam on the Umatac/La Sa Fua Rivers has been estimated at approximately $2 million. (see Table No. XXIV, Preliminary Cost Estimate - Umatac Reservoir). A dam on the Umatac/La Sa Fua Rivers would irrigate 1,046 acres for 180 days during the dry season, and its storage capacity would be 180 million gallons. The impounding area of the proposed dam would be 16 acres (see Table No. XXIII, Umatac/La Sa Fua - Reservoir Potential Yield).

Inarajan-Merizo Pipelines and Roadway: In view of the fact that the construction of a dam would take considerable time, that water shortages for existing small farms, tourism, commerce and residents alike in southern Guam are already critical, it may prove necessary to construct pipelines and water pumps from Inarajan to Merizo as an interim measure until the Ugam dam is constructed. The waterpipe and necessary roadway improvements would cost an estimated $4.0 million.

Government Agencies Involved: Government agencies involved in the development of water supplies in the south of the island are the Public Utility Agency of Guam (PUAG), whose function is to plan the islandwide water system for Guam, and determine the engineering, technical and cost aspects of such development; the Guam Department of Public Works has the responsibility of placing construction projects for the Government of Guam out on bid, and the Department of Agriculture is also involved to the extent that it designates those areas in the south of Guam which should receive priority treatment relative to the development of irrigation systems for agriculture. The development plans of all these agencies are under the supervision and coordination of the Bureau of Planning, Office of the Governor.

According to the above agencies concerned, work on the construction of the dams could begin immediately after funds have been appropriated and bids placed for the projects.

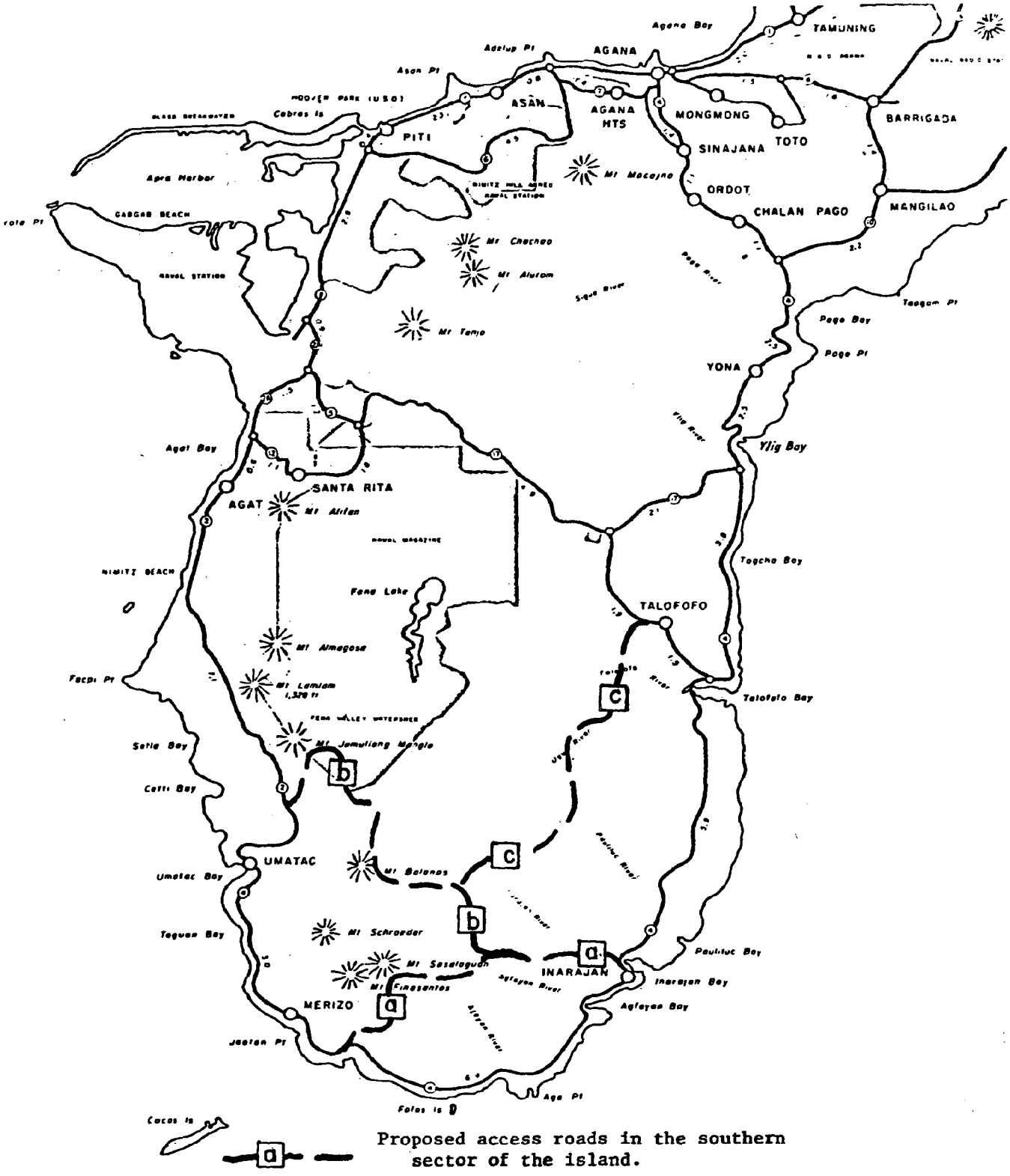
Summary: The following presents a summary relative to the development of an irrigation system for the southern sector of Guam:

Project/Priority	Project Cost Est.	Agencies Involved
1. Ugam Dam*	$4.4 million	PUAG, Public Works
2. Talofofo Dam	$6.0 million	PUAG, Public Works
3. Inarajan Dam	$2.7 million	PUAG, Public Works
4. Umatac Dam	$2.0 million	PUAG, Public Works

*Because the construction of the Ugam Dam would take considerable time to complete, the extension of a pipeline from Inarajan to Merizo should be considered as a priority interim measure to alleviate critical water shortages currently experienced in the southern sector of Guam.

MAP NO. 10

MAP OF GUAM SHOWING THE THREE PROPOSED ACCESS ROADS



Proposed access roads in the southern sector of the island.

Construction of Access Roads: In order to develop agriculture in the southern areas of Guam, it will be necessary to construct a number of access roads into potential farmland areas.

Two-lane farm roads should be constructed along the following routes:

(a) Inarajan (Route 4) through Adaumang, Salongna, Agfayan Somnac, Mt. Sasalaguan, Gugae, Joa connecting to Quinene road in Merizo.

(b) Agfayan through Fanmghugan, Atate, Bolanos, As Sali, Chalan Diaog, Chagame, Salogna connecting to Route 2, Umatac.

(c) Agfayan along Atate River along jeep trail to Ugum River, Matai Taotao through El Camino Real to the old Spanish Bridge connecting to Route 17A at Talofofo.

Costs: It has been estimated that the engineering and design studies required to construct the above access roads would cost $250,000. The cost of actually constructing the two-lane access roads would amount to approximately $1.5 million.*

Government Agencies Involved: The Guam Department of Public Works is the agency on Guam designated to plan and supervise the construction of highways, lanes and access roads on Guam. The Guam Department of Land Management would also be involved in land surveys and condemnation procedures whenever such procedures are required. The Bureau of Planning, Office of the Governor, has the responsibility of supervising and coordinating all department and agency development plans.

Summary: The following presents a summary relative to the construction of the three proposed access roads in the southern sector of the island:

Project/Priority	Project Cost	Agency Involved
(a) Inarajan to Quinene Road, Merizo (c) Agfayan to Route 17A, Talofofo	$1 million	Dept. of Public Works Dept. of Land Management
(b) Agfayan to Route 2, Umatac	$500,000*	Dept. of Public Works Dept. of Land Management
	$1.5 million	

*Eighteen months ago it was estimated that the access road construction would cost $1.0 m. This amount, however, has been adjusted upwards as the result of inflation. This amount does not include the cost of land purchase or condemnation.

Construction of Public Market: If the people of Guam are to be encouraged to cultivate agricultural lands, they must be given the opportunity and outlet to sell their farm produce. At the present time Guam lacks a centralized open public market to which the farmer can truck his produce and sell it directly to the consuming public, including buyers for hotels, restaurants, and other retailers. It is therefore proposed that a large open-air permanent facility serving as a public market be constructed in the center of the city of Agana on government-owned property at the Paseo de Susana.

Besides serving the needs of the local farmer, the public market would provide a center for the sale of local handicrafts, fish, fruits, flowers, pottery, Guamanian delicacies, the center for public auctions, annual fairs, competitions and other social activities.

Government Agencies Involved: The Guam Department of Public Works will be involved in the construction of the proposed market to the extent that it is the agency designated to place construction projects out on bid.

Costs: It is estimated that the architectural and engineering specifications for the public market would cost $75,000. The cost of actual construction is estimated at $750,000.

Summary: The following presents a summary relative to the design and construction of the public market:

Project	Project Cost	Agencies Involved
A/E Plans	$ 75,000	Public Works Department Land Management
Market Construction	$750,000	Public Works Department

Construction of Skill Center: Because there are currently so many people on Guam who are either underemployed, or unemployed, it is necessary to construct a facility, a Skill Center, which will train or retrain hundreds of Guam's citizens who at the present time are not productive. The several thousand H-2 aliens who were brought to Guam to work in the construction industry should be replaced by qualified local citizens. The Guam Department of Labor has approximately one hundred trainees who are interested in entering the construction field, and expects this number to increase rapidly once adequate

facilities and equipment are available to train people. Although the construction industry on Guam is not expected to remain the number one major industry, construction nevertheless will always continue to employ a significant number of persons on Guam since Guam is still only midway in her efforts to complete an islandwide infrastructure. Widescale government construction will have to continue over the next two decades and during this time Guam should push aggressively to replace imported alien construction labor with local qualified citizens.

Government Agencies Involved: The Guam Department of Labor, the Department of Land Management and the Department of Public Works would be the three local agencies primarily involved in the design and construction of a Skill Center.

Costs: It is estimated that the architectural and engineering specifications for the proposed Skill Center would cost approximately $75,000, and the cost of actual construction would amount to an estimated $420,000.

Summary: The following presents a summary relative to the design and construction of the proposed Skill Center:

Project	Project Cost	Agencies Involved
A/E Plans	$ 75,000	Public Works Department Labor Department Land Management Department
Skill Center Construction	$420,000	

Impact of First Year Program on Employment: At the present time unemployment on Guam is over 8%, and in the construction industry it is estimated at 28%.

Immediate Impact - If Guam could obtain federal financial assistance - under the terms of the Public Works and Economic Development Act of 1965 as amended - the proposed construction projects for pipelines, irrigation, access roads, the public market and the Skill Center would offer immediate employment opportunities for the many architects and engineers currently unemployed, and for the four-to-five hundred local resident construction workers currently out of work.

Long-term Impact: - Unemployment exists on Guam as the result of a reduction of military activities, the withdrawal of industries from the island, the slump in construction, and in the public sector as the result of declining revenues. At the present time Guam has little or no control over the major influences on her economy - i.e. military activities, federal statutes which influence trade and commerce, or branch industries which locate on the island. It is therefore important that Guam develop local industries which are relatively independent of outside fluctuations and influences. A relative economic independence would provide consistent, stable employment for local residents. The development of agriculture will, in the future, provide a more stable and reliable source of employment for a significant number of local residents.

Financial Assistance Required: As the result of the inflation/recession, the withdrawal of industry, the decline in military activities and the imposition of certain federal laws on Guam, the Government of Guam's revenues for FY 75 have fallen considerably below original projections. Whereas a total of $129 million was the estimated revenue income for FY 75, it is now anticipated that the government will collect only $115 million. Next fiscal year, it is estimated that the Guam Treasury will collect only $105 million - which is less than the operating costs for FY 75.

Next fiscal year, therefore, it is anticipated that the Government of Guam will be hard pressed to raise funds for capital improvement projects. Guam is therefore requesting that under the terms of the Public Works and Economic Development Act as amended, the territory be financed with up to 80% of the cost of development projects, or up to 100% of the cost of such projects under the terms of Title IX, Section 903.

Program for Following Years

The OEDP Committee recommends that subsequent to the implementation of the proposed programs during the first year: Guam should consider constructing a large freeze plant for the freezing of any excess farm produce; and a bottling and canning plant for the processing of surplus farm products. It is also recommended that a large warehouse be constructed for the use of farmers to store their goods.

Other Potentials: It is recommended that the potentials for husbandry, fishing, tourism and light industry should also be further explored.

Husbandry: If farmers on Guam are to invest in the breeding of livestock, it will be necessary to construct slaughterhouse facilities and a poultry processing plant. Also a large freezing facility would be needed to preserve quantities of meat.

Fishing: If Guam is to develop a fishing industry it will be necessary for the Government of Guam to undertake such projects as the deepening of channels and the construction of safe harbors, fishing berths and marinas.

Tourism: The expansion of tourism in the future will require the construction of additional recreational facilities, the construction of access roads to locations of natural or historic interest, and the construction of sports facilities - such as marinas for sport sailing or fishing.

Light Industry: During future years, the OEDP Committee should explore the need to provide additional industrial parks for the location of new industry on Guam. It is the opinion of the OEDP Committee that Guam should exploit the advantages of the U.S. tariff laws which enable her to add to the value of a foreign product or resource and export the resulting goods to the U.S. mainland duty free. Exploitation of Guam's duty status would require the construction and improvement of additional industrial parks. Guam should also attempt to exploit the local market for large bulk items which could be imported either as raw material or unassembled, and then processed on Guam. This would help to reduce the current high cost of bulky goods on Guam.

Impact on Employment: The development of all the above industries would result in a considerable expansion of employment opportunities on Guam, and would invite related industries to locate on the island, which, in turn, would offer a greater variety of employment opportunities to succeeding generations of youngsters who graduate from school each year.

COMMITTEE WORK PLAN

Future Tasks: The Committee plans to explore the following development potentials for consideration next year not necessarily listed in order of priority:

Tourism: The development of recreation and sports facilities; the expansion of the Guam International Air Terminal facilities; the addition of air routes from Guam direct to Australia, etc.

Fishing: The development of a locally based fishing industry; the construction of marinas, fishing berths and the improvement of channels and harbors.

Light Industry: The development of light industry - the improvement of land for industrial parks to attract new industry.

Husbandry: The construction of a public slaughterhouse and poultry processing plant. The development of feed mills and the development of grazing lands for livestock.

All the above areas will be further explored for their feasibility and need by the Committee. A survey and analysis of Guam's labor force - its characteristics and needs, will also be considered. The need and feasibility of constructing a child care center so that more women could find commercial employment during the daytime should also be explored.

Major Program Influences: The policies of the U.S. Military in the Pacific have had, and will continue to have, a major impact on Guam's economic and employment status. The Government of Guam, however, is unable to project plans which will incorporate a military build-up or reduction-in-force, since the plans or intentions of the U.S. Department of Defense are not made known to Guam. A decline in military activities in the Western Pacific has the impact on Guam of a reduction of construction funds expended on the island, and a reduction of employment of local residents in federal activities. Lay-offs, such as the 450 lay-offs scheduled for June, 1975, result in a serious unemployment problem. Any decline in construction activity also results in reduced employment in the construction industry. On the other hand, military build-ups on Guam have the impact of infusing additional capital into the economy for construction and payroll purposes. A drastic move in the direction of a build-up or a scaling-down of activities would have an equally drastic impact on Guam's overall economic status.

Decisions by the Civil Aeronautics Board (CAB) to increase or reduce air routes in and out of Guam, or decisions which permit one air carrier to monopolize air traffic through Guam, have a substantial impact on Guam's visitor and tourist industry, and upon the cost of passenger and freight fares. CAB and U.S. State Department policies can determine independently of Guam whether Guam will develop a thriving tourist is to be confined to traffic between Guam and Japan. The limitation or expansion of air routes between Guam and other developed countries such as Australia, New Zealand and Indonesia will, in the future, have a substantial impact on Guam's economic, and employment opportunities.

Attempts by the territorial government, on the other hand, to develop agriculture, fishing, and to involve the local residents more intimately in the tourist industry should have a significant influence upon Guam's economy and employment situation in the future.

V. PROJECT LIST AND PRIORITIES

1. Water Pipes and Roadway, Inarajan/Merizo:

Role: If farmers, businessmen and residents are to continue to live and work in the southern sector of Guam, it will be necessary to take immediate steps to construct pipelines to divert water from the northern well system to Merizo. For the past two months the Government of Guam has had to truck water purchased from the Navy from Agat to Merizo at a cost of $2,000 per day, due to the long dry season which has dried up the Geus River from which Merizo normally obtains its water supply. The shortage of water in the Merizo area has been critical since March 20, 1975, and presents a health hazard to the local residents.

Not only have residents suffered from the shortage of potable water, but crops on the small farms in the area have been wiped out for lack of a water supply. The tourist industry and local businesses located at Merizo have also suffered from losses in customers and income due directly to drought conditions.

When the heavy rains occur in July and August, the Merizo water system will still continue to present serious health problems since the old and dilapidated treatment facilities built in the late 1940's are no longer able to purify the Geus River water. The water supply is not infrequently found to be contaminated following heavy rains.

The Vietnamese refugee experience on Guam has underscored the critical need to upgrade water facilities for the civilian community in the south. In order to serve the needs of the 40,000 refugees located at Orote Point, in mid-May, the U.S. Navy had to recall its water tankers being used by the Government of Guam for delivering water to the village of Merizo. Fortunately, the Air Force came to the rescue by providing its own water tankers so that Merizo could continue to receive adequate water.

Since last March, the civilian community in the south has been totally dependent upon the good will and generosity of the Navy and Air Force. The lack of its own adequate facilities placed the village of Merizo in a weak and vulnerable position, an experience which it does not wish to repeat.

The construction of water pipes and simultaneous construction of a roadway between Inarajan and Merizo would serve to alleviate the immediate water problems at Merizo. The construction of the pipeline would have to be followed in the near future with the construction of a dam on the Ugam River to supply the needs of developing agriculture and tourism.

Location: The proposed pipeline and roadway would follow the route of the existing road which follows the coastline between Inarajan and Merizo on the southern shores of the island. This route passes through numerous small residential areas and ranches and, as it approaches Merizo, through the areas frequented by visiting tourists.

Funding Requirements: It is estimated that the total cost of the water pipe/road project would amount to $4,116,000, of which approximately $1.5 million would go towards the cost of installing the pipelines, and the remainder to the construction of the roadway. The sum of $111,000 has already been expended on architects and engineering specification. The Thirteenth Guam Legislature on June 13, 1975, appropriated $1.5 million towards Guam's share of the cost of the project, and Guam is applying to EDA for a grant of $2,058,000 under the terms of Title I, Public Works and Economic Development Act of 1965. Additionally, approximately $500,000 worth of water pipes and equipment is available in the existing inventory for contribution towards Guam's 50% share of the project cost.

Impact: The economic impact of the construction of the pipeline and roadway would be significant. Agricultural losses have occurred this year and in years past due to the inadequate water supply during the dry season. Installation of the water pipe would prevent crop losses on small ranches and farms in the future. The growth of the tourist and related industries in Merizo has been severely frustrated and hampered by the water shortages. The proposed project would enable businesses and tourist agents to implement their development plans to expand tourism.

Installation of the waterline would also provide interim relief to existing businesses, farms and residences in the Merizo area until a dam could be constructed on the Ugam River. When the Ugam dam has been constructed, the water pipes would then serve to carry water from the dam, rather than water diverted from the northern well system. Construction of the Ugam dam should immediately follow the completion of the water pipe project, since the latter is only an interim measure and the need would still exist to increase the water supply for expanded toursim and commercial farming.

The environmental impact of the proposed project is expected to be minimal since the pipeline and roadway would follow the already existing post-war route between Inarajan and Merizo.

Priority: Such is the urgent need to install a constant and reliable water supply to Merizo that this project takes priority over any other construction proposal. Until the water pipes are installed, the health and wellbeing of the inhabitants, tourists, businessmen, farmers, and farm crops in the Merizo area is in serious jeopardy.

2. Irrigation Dam:

Role: If agriculture is to be developed as a viable industry in the southern sector of Guam where most of the arable land is concentrated it will be essential to provide a reliable irrigation system. The role of a dam and irrigation facilities is vital to the development of agriculture.

Guam suffers from a relatively extended dry season each year between December and June. Whereas the average rainfall on Guam is 85.42 inches per year, the average rainfall between the months of December and May is only 23.65 inches, and during some years it falls far below this average as in 1966 when rainfall was as low as 6.11 inches, and 1973 when it was 7.87 inches. Between January and May this year (1975) rainfall totaled only 13.08 inches, and the months of April and May brought only 3.57 inches of rain. Rainfall during some months has fallen as low as .31 inches (Feb. 1960), or .51 inches (April, 1966).

Inadequate rainfall such as Guam has experienced this year would have destroyed any existing commercial crops and has destroyed crops on existing small farms. The lack of irrigation facilities has provided a constant deterrent to widescale commercial farming. No farming is willing to invest time, money and labor in a venture which could be wiped out every other year by drought conditions.

On the other hand, the construction of a dam on the Talofofo and/or Ugam Rivers would make it possible for Guam to enter into a new era of commercial farming. At this particular time in Guam's economic history, it is necessary to replace Guam's former prime industry - construction - with some other activity which will provide stable and lasting employment and benefits to the community. The role of the proposed dams is therefore essential to Guam's further economic development.

Location: Guam's rivers and streams are located in the southern half of the island where the terrain is hilly and the soil contains a great amount of clay. The location of the Talofofo and Ugam Rivers is in the heart of the arable land area where farming is most likely to be successful. If a choice has to be made between construction of dams on the Talofofo or Ugam Rivers, the Ugam River would be selected as the preferred site from the point of view of practicality and lower cost.

Funding Requirements: The estimated cost of dam construction on the Ugam River was quoted at $2.4 million in 1972. Allowing for inflation, the cost is now estimated at approximately $4.4 million.

In Addition to funding sought from the Economic Development Administration, Guam will explore the feasibility of obtaining financial assistance from the following federal agencies:

the Farmers Home Administration, U.S. Department of Agriculture;
Department of Housing and Urban Development;
Department of Health, Education and Welfare; and
the Army Corps of Engineers, U.S. Department of Defense.

Additionally, should the U.S. Congress approve the authorization of $56.0 million for capital improvements for Guam, a portion of this money could be utilized as Guam's matching contribution to whatever federal program funds are made available for the construction of the dam and irrigation facilities.

Impact: The economic impact of the construction of a dam on the Ugam River would be that it would then be possible to provide irrigation for approximately 2,000 acres of land in the immediate vicinity. These acres which are comprised of prime agricultural land could then produce vegetable crops year round. The production of local vegetables for local consumption would result in: local employment; an end to the drain of dollars flowing out of Guam to pay for imported vegetables; and a reduction in the cost of food prices.

The two major environmental factors related to the construction of dams are as follows:

A. Impacts of possible changes in quality of surface water runoff and ground water from new agricultural land as a result of pesticide, fertilizer and herbicide application.

Pesticides and herbicides will undoutedly be required. If not wisely chosen and used, these could have a detrimental effect on water quality, either through leaching into groundwater, or by surface runoff to Talofofo River. River contamination could have an impact on fish, wildlife and recreation use downstream. No significant amount of groundwater has been developed for consumptive use in the Talofofo Basin. Accordingly, any infiltration of irrigation water would not be a problem, insofar as introduction into a potable water supply. Assuming that the Government of Guam will be able to designate allowable types of pesticides, etc., any significant adverse effect can be prevented. If the only allowable poisons are expensive, and require frequent application, there will, of course, be an effect on crop economics.

Fertilizers proposed for use would likely cause minimum eutrophic enrichment in normal application, but could be expected to add some

nutrients to the Talofofo River, causing a possible increase in algae growth. This could be of some concern in terms of the aesthetic aspects of Talofofo Bay and the lower Talofofo River as prime areas for recreational development and should be investigated further. Proper selection of fertilizers and controls on application can ensure there is no major adverse environmental effect.

B. Impacts of increased agricultural activity on the sediment load on surface water.

Soil erosion from the newly tilled agricultural land could be considered as accelerated diminution of a resource. However, farming in accordance with good soil conservation practices can minimize this. Furthermore, such farming practices can improve the present situation wherein severe erosion often occurs as an aftermath of grass fires.

It is likely that some increase will occur in the sediment load of Talofofo River. However the dam itself, by checking some of the stream energy during the flood flows, should reduce the overall sediment transport of the river.

Priority: Of all the projects scheduled for construction in the immediate future, the construction of a dam and an irrigation system is the most important. The construction of access roads into the Ugam River area would be pointless if an irrigation system were not first provided. No farmers would invest their money and labor in farming the area if they could not be assured of a year-round supply of water. Additionally, the construction of a public market would be almost pointless if the farmer were not able to produce crops on a commercial scale--which he could not do without the existence of an adequate irrigation system.

3. Access Roads:

Role: The construction of access roads into the area to be irrigated by the proposed dam would open up the terrain to farmers. The access roads would complement the dam construction in Guam's efforts to develop agriculture as a viable industry.

At the present time there is no way a farmer could drive his truck over the terrain which is occasionally hilly or rocky, occasionally covered with sword grass or dense jungle brush, and, in the wet season of the year, interlaced with streams. The construction of access roads would render it possible for farmers to have access to their land during all seasons of the year, and to transport equipment and farm produce from the field to the main highway to market.

Failure to construct roads into the interior arable lands would prevent the farmer attempting to raise crops on a commercial scale.

The construction of access roads is therefore vital to any effort to develop agriculture as an industry on Guam.

Location: The location of the proposed access roads would be in the southern half of Guam dissecting the land area through which the major rivers on Guam flow. If an irrigation dam were to be constructed on the Ugam River, access road construction should run approximately north-south through those acres which would be irrigated by the River. The access road would connect with two major highways in the north and south -Routes 4A and 4.

Funding Requirements: The cost of construction of a two-lane roadway between Routes 4A and 4 has been recently estimated at $1.5 million. It is estimated that at a cost of $50.00 per linear foot (including the costs of engineering) the roads would cost $1.3 million. Minor stream crossings would cost an additional $.2 million.

Guam is seeking funding assistance from EDA since local financial resources are insufficient to support the costs of construction. Guam will also explore the possibility of obtaining funds from the Agricultural Marketing Service, U.S. Department of Agriculture, under the terms of the Agricultural Marketing Act of 1946.

Impact: Concerning the economic impact, the construction of access roads in the southern sector of the island would open up interior terrain which presently lies unutilized, unproductive and uninhabited. The access roads would enable the people of Guam to utilize their most valuable resources - the soil and the climate which between them are capable of producing food crops during twelve months of the year. Construction of the access roads would also serve to open up areas suitable for fish ponds, reforestation, grazing, wildlife habitat restoration, hunting and tourism.

Concerning the environmental impact, construction of the proposed two-lane access roads will result in minor air, water and noise pollution. However, these would present only short-term adverse effects on the air and water quality.

There is an established conservation zone in the Bolanos Region bordered by Mt. LamLam to the north and west, Mt. Bolanos to the south and the upper reaches of the Ugam River to the east. The proposed access roads, however, will not penetrate this zone.

Priority: Since any attempt to develop commercial agriculture on Guam would be defeated without the construction of an irrigation system, the construction of dams rank first in priority. Second on the list of priorities is the construction of access roads since, even if a dam were to be constructed on one of the rivers, it would be

difficult to farm the area without access roads into the interior. Both proposed projects are in fact interdependent and equally important to the development of agriculture.

4. Public Market:

Role: If local farmers were able to cultivate their land on a commercial scale by the construction of an irrigation system and access roads, they would need an outlet for their produce. The construction of a public market would enable the farmer to display and sell his produce in a centralized location. It would enable him to compete with the large supermarkets who fly their produce into Guam at high cost.

The construction of a public market is essential to the success of agriculture as a viable industry. The project would complement the construction of a dam and access roads, as an integrated part of the agricultural development program. Without a centralized outlet is is doubtful whether farming, at least in its initial stages of development, would be profitable.

Location: It is proposed that the public market be built on the site of the old market in Agana--the Paseo de Susana--which is a central location. Both farmers and consumers would have ready access to the market which would be constructed on Government of Guam land.

Funding Requirements: It is estimated that the public market would cost a total of $1.0 million. The site development of five acres, including water, power, sewer and parking facilities, would amount to $100,000. Construction of the covered market area and restroom facilities would cost $810,000 (27,000 sq. ft. at $30.00 per square foot); and engineering and Administration costs would amount to $90,000. The Government of Guam is pursuing all avenues to defray portions of the engineering and administration costs. For actual construction costs, however, it is seeking aid from EDA. Guam will also explore the possibility of obtaining funds from the Agricultural Marketing Service, U.S. Department of Agriculture.

Impact: The economic impact of establishing a public market where farmers could sell their produce would be beneficial in that land owners would be encouraged to cultivate their land knowing they can sell at a centralized location. The production and sale of vegetables and fruits locally would also serve to reduce the flow of dollars out of Guam.

Concerning the environmental impact of constructing and operating a centralized public market in Agana, the following two factors would

be of prime concern:

1. Solid waste produced by the market would need to be disposed of promptly, regularly and efficiently. A sufficient number of solid waste containers would have to be installed the length and breadth of the market area to ensure that solid waste does not litter and pollute the ground. Failure to establish an efficient solid waste disposal system would result in the breeding of insects and rodents, and the attraction of stray dogs and cats. An efficient disposal system, on the other hand, would eliminate any sanitary or pollution problems.

2. Erosion of the ground surface around the market area could present a potential problem. The grounds should either be paved or sealed to prevent erosion, to prevent air pollution through wind-borne dust, and to prevent water-borne sediment from being washed into the bay. An adequate storm drainage system should be incorporated into the design of the market and parking areas to prevent erosion by heavy rains, to carry off the wash waters flushing the stalls at the end of the market day, and to prevent the deposit of sediment into the Agana Bay.

Apart from the above potentials which could quite easily be controlled, the public market should present no serious environmental problems.

Priority: The construction of a public market ranks third in order of priority since volume agricultural produce would not be available for sale if an irrigation system and access roads were not initially constructed. On the other hand, although the public market ranks third in order of priority, it is nevertheless considered to be extremely important to the success of Guam's attempts to encourage agriculture. All three proposed projects are complementary, interdependent and conducive to establishing agriculture as a viable commercial industry.

On the other hand, should the obtaining of funds for the construction of the Ugam irrigation dam prove to be time consuming, it is felt that Guam should nevertheless proceed immediately with the construction of a public market.

5. Skill Center:

Role: There is a need to upgrade the skills of the labor force on Guam. At the present time, alien laborers are admitted to Guam on a temporary basis to work in such fields as construction, mechanics, engineering and agriculture. The construction of a Skill Center would provide a facility in which both the unemployed and underemployed could

be trained to eventually replace aliens imported to Guam. The training of qualified and skilled workers would promote the development of Guam's economy and reduce the drain of dollars into the Orient. The training of persons to operate, maintain and repair agricultural equipment would also support the Government of Guam's drive to develop agriculture.

Location: The Skill Center would be constructed on Government of Guam land in a centralized location north of Tamuning. The exact location has not yet been identified, however, it is intended that the Center should serve the entire island and should be easily accessible from the north and south. The area north of Tamuning at Harmon and Upper Tumon is occupied by public works facilities, schools and industrial establishments, and would therefore be an appropriate location for the construction of a Skill Center.

Funding Requirements: Construction of the Skill Center would cost approximately $475,000. Funding for the project is sought from the Economic Development Administration under the terms of Title I or Title IX of the Public Works and Economic Development Act of 1965, as amended.

Impact: The economic impact of constructing a Skill Center would be to qualify several hundred underemployed or unemployed residents for jobs in local industries. The availability of local qualified workers would reduce the need to import alien laborers, and, the standard of living of the average worker would be upgraded, also, dollars currently flowing out of Guam into the Orient to alien laborers' families would remain in circulation on the island.

The environmental impact of constructing a Skill Center within a commercial/industrial zone in the center of the island would be negligible, in terms of the disruption of wildlife or natural activities, or in terms of air or sound pollution.

Priority: The Skill Center ranks fourth in priority among the several projects proposed for the immediate future. If Guam is to develop her economy the local labor force must be trained for employment in such fields as construction and agriculture. A Skill Center would therefore fulfill an economic and manpower need.

VI. ACKNOWLEDGEMENTS

Organizations and agencies consulted during the preparation of the OEDP include the following: the Office of the Governor; the Bureau of Planning; the Bureau of Budget and Management Research; the Department of Labor; the U.S. Immigration and Naturalization Service, Agana; the Department of Agriculture; Public Utility Agency of Guam; Department of Land Management; the Guam Power Authority; Department of Public Works; Department of Commerce; University of Guam; Department of Education and the Guam Visitor's Bureau. Information, advice and assistance was obtained from the officials and personnel of all the above territorial departments and agencies.

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